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ABSTRACT

This book analyzes the contribution made by school textbooks to the fostering of lifelong learning skills. Two complementary approaches were adopted for the research on which it is based. The first, a deductive approach, is reflected in part 1 of the book. Starting from the conceptual framework of lifelong education as it has been developed by the Unesco Institute for Education (UIE), a list of objectives establishes the function of schooling within the perspective of lifelong education. The list of objectives is as follows: (1) stimulation of student interest (motivation); (2) creativity and self-direction; (3) transfer (i.e., linking educational experiences with life); (4) linkage among disciplines; and (5) flexibility. This list suggests tasks that can be related to characteristics of textbooks in the context of lifelong education; the characteristics are these: format, presentation, language, methodology, and achievement (e.g., self-assessment and self-awareness). The second approach, an inductive approach, is used in part 2 of this study. Three main steps are identifiable within this approach: the selection of textbooks thought to embrace principles of lifelong education; the testing and refining of the matrix used for analyzing the textbooks; and the analysis of textbooks selected by three national teams in Singapore, the United States, and Wales. The findings reported in the study show that much has been accomplished with regard to textbook design in order to promote the objectives of lifelong education; nevertheless, the achievement of certain objectives (i.e., linkage among disciplines and flexibility) is less in evidence. Much remains to be done if textbooks are to support all of the objectives of lifelong education. Details of the U.S. study and lists of the textbooks analyzed are included in the appendix. (68 references) (KC)

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SCHOOL TEXTBOOKS AND LIFELONG EDUCATION: AN ANALYSIS OF SCHOOLBOOKS FROM THREE COUNTRIES

Charles Hummel

U.S. DEPARTMENT OF EDUCATION

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Charles Hummel

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Hamburg

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   by R. H. Dave
   1973, ISBN 92 820 1004 X
   (also available in Arabic and French)
2. **Lifelong Education and the School**
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   (Bilingual – English and French)
   prepared by R. H. Dave and N. Stiemerling
   1973, ISBN 92 820 0005 2
3. **Reflections on Lifelong Education and the School**
   edited by R. H. Dave
   1975, ISBN 92 820 1006 6
4. **Lifelong Education,**
   Schools and Curricula in Developing Countries
   by H. W. R. Hawes
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   (also available in French)
5. **Lifelong Education**
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   1978, ISBN 92 820 1011 2
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   by V. Patel and N. N. Shukla. W. van Vliet (ed.)
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    1988, ISBN 92 820 1049 X

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FOREWORD

Conducted within the broader framework of a research programme undertaken since 1972 by the Unesco Institute for Education (UIE) into the aims, methods and content of school curricula in the perspective of lifelong education, the present study is the outcome of an international research project focusing on the contribution made by school textbooks to the fostering of lifelong learning skills.

The school textbook - often criticised as a teaching tool but never totally replaced - continues to be one of the most important instruments of teaching and learning. Its factual content and pedagogical approaches combine to present a systematic process of learning that greatly influences the development in learners of learning abilities and behaviour patterns. Hence the importance of arriving at a better understanding of the criteria to be used in appraising textbooks within the context of lifelong education.

Two complementary approaches have been adopted for this study. The first - deductive - approach is reflected in Part One of the present study. Starting from the conceptual framework of lifelong education as it has been developed by UIE, a list of objectives is set out which establishes the function of schooling within the perspective of lifelong education. While it is not intended to be exhaustive or systematic, the list suggests tasks that can be related to characteristics of textbooks in the context of lifelong education.

The second - inductive - approach is seen in Part Two of the study. Three main steps are identifiable within this approach - the selection of textbooks thought to embrace principles of lifelong education; the testing and refining of the matrix used for analysing the textbooks; the analysis of textbooks selected by the three national teams of Singapore, the United States and Wales. Clearly, the latter step is the focal

point of the inductive approach, the nature of the project being an essentially practical one.

The findings reported in the present study show that while much has been achieved with regard to textbook design in order to ensure that they embrace certain characteristic features of lifelong education, other characteristics - linkage and flexibility - are less in evidence, indicating that a lot remains to be done if textbooks are to embody all the characteristic features of lifelong education. Cross-curricular and flexible approaches within teaching and learning are becoming, however, increasingly evident in school curricula and these help to prepare learners for a lifelong process of education in an ever-changing world. The school textbook is beginning to reflect, and is in some cases the instigator of, this innovation.

A number of colleagues have worked intensively on this project since its inception. Firstly, I should like to express my sincere thanks to Charles Hummel, who undertook the task of coordinating the present study, and to the three national team leaders - Marilyn Clark (United States), Eric Johns (Wales) and S. Gopinathan (Singapore) - for their valuable work in preparing their respective national reports.

My gratitude also extends to Les Evans, Schools Inspector for Wales; Kurt Gestrelius, of the Pedagogisk-Psykologiska Institution in Malmö, Sweden; Peter Haussler, of I.P.N., Federal Republic of Germany; and Carl August Schroeder, of Westermann Verlag, Hamburg, Federal Republic of Germany. All participated in the initial design of the project and worked on its first draft.

I also wish to convey my warmest thanks to Dino Carelli, former Director of UIE, and to former colleagues M. Bogaardt, Len Goad, Jeremy Greenland and Kenneth Robinson. I am also grateful to E. Brunswic, H. Dieuzeide and E. Gelpi of the Unesco Secretariat for their consultation on this project.

On behalf of the project team I express gratitude to the publishers who gave permission for extracts from their textbooks to be reproduced in this study.

Finally, may I thank Michael Green for editing the final version of the present study, and Alexis Hanford and Gladys Scully for typing the manuscript.

Ravindra H. Dave
Director
Unesco Institute for Education

INTRODUCTION

What characteristics should a textbook have if it is to contribute to the development in the learner of abilities considered essential for a lifelong process of education? What criteria should be used in the appraisal of textbooks within the perspective of lifelong education? It is to these two questions that the present study attempts to give a tentative first answer.

The aims of this study are thus twofold: to identify and state those characteristics of textbooks that contribute to the fostering of lifelong learning skills and to show how a textbook consistent with the principles of lifelong education may be designed and presented.

The present study is clearly therefore of a practical rather than an academic nature, and attempts to offer guidelines to authors, school authorities and publishers and to give advice to those who select and use textbooks: education authorities, teachers, students and parents. By doing so it is hoped that this study will also help to further clarify the concept of lifelong education and show some of its practical consequences for formal education and for the educational process as it is experienced in the classroom.

It is important to state at the outset that this is *not* a comparative study about general current trends in textbook production in different parts of the world, despite the fact that a number of innovative textbooks from three different countries have been analysed in order to give concrete examples of those features which the study will show as being consistent with the principles of lifelong education; neither is any attempt made here to evaluate critically the textbooks selected for analysis.

The project to which this study belongs is part of a long-term research programme initiated by the Unesco Institute for Education in Hamburg (UIE) which, with its main focus on education at the school level, is aimed at the exploration and elaboration of the concept of lifelong education. To those responsible for this programme it seemed appropriate to embark on a series of research projects likely to assist in the implementation of what has already been developed in the field of curriculum. The contribution made to the fostering of life-long learning skills by the textbook - which continues to be one of the most important instruments in teaching and which is thought to exert considerable influence on the development of learning abilities and behaviour patterns - was therefore felt to be a particularly interesting field of study.

Although much attention has been paid in recent years to aspects of textbooks ranging from language, readability and sex-role stereotyping to the function and impact of illustrations, little research has been carried out, with the exception of that done for programmed learning texts, into the didactic and pedagogical aspects of textbooks. Important questions such as: How does a textbook influence what happens in a classroom? How is it used outside school? How does a textbook stimulate pupils' interest? How does it determine various learning processes and how could it promote self-directed learning? How does it contribute to shaping behaviours and training skills? thus remain to be answered.

All projects conducted by UIE as part of its research programme into lifelong education are of an international character and follow similar organisational patterns: national research teams from various countries work on a specific theme following a common methodological approach. A comprehensive report is then compiled according to the results of the cross-analysis of the national reports. This study represents the synthesis of the national studies, elaborated by three teams from Singapore (S. Gopinathan), the United States (National Project Coordinator: Marilyn Clark) and Wales (National Team Leader: Eric L. Johns).

It was hoped at the outset that two or three more teams would be able to participate, especially from socialist and from developing countries. For various reasons this was not possible, one being language constraints, another being that only very few developing countries are already producing school textbooks for the chosen age group (the last three years

of compulsory education, i.e. ca. 13-17 year-old pupils). The limitations of this study are thus evident.

In Part One, an attempt is made to deduce systematically from the theory of lifelong education which characteristics of textbooks might be considered essential for preparing pupils for a lifelong process of education.

In Part Two, the three national teams were guided by a matrix developed in Part One in order to examine a number of textbooks actually being used by pupils in their final years of compulsory education (with special emphasis being placed on the general area of Social Studies), and which were felt to be innovative and to show features consistent with the principles of lifelong education. A synthesis of the findings of the three teams serves to provide concrete examples of the characteristics identified in Part One.

In Part Three, conclusions are drawn and practical recommendations made to textbook producers, textbook users and researchers.

The present study does not set out to gauge whether the characteristics identified do in fact prepare pupils to become lifelong learners, nor is the use of textbooks by teachers and pupils analysed. However, this study will have achieved its objectives if it makes textbook authors and publishers aware of textbook design which incorporates characteristics consistent with the principles of lifelong education.

The objectives of the present study are thus to:
- give textbook authors and publishers some indications how this might be achieved;
- assist education authorities and teachers in selecting and using textbooks in the spirit of lifelong education;
- provoke more textbook research.

Part One

Lifelong Education and School Textbooks

CHAPTER 1

Lifelong Education

Never before has man been exposed to changes as rapid and radical as are taking place today. The explosion of knowledge and the vertiginous development of technology are shaking a world torn by political, economic and socio-cultural strife. Submerged by the floods of information dispensed by the many forms of mass media, contemporary man is witnessing an unprecedented acceleration of history. This constantly changing natural and human environment is making it increasingly difficult for him to orient himself and to manage his life efficiently.

Children born today, the school-going generation of tomorrow, will begin their working life at the start of a new millenium, a time when certain natural resources - especially oil, upon whose use our civilisation is dependent - will be in danger of becoming exhausted. A new civilisation, the shape of which we can barely imagine, thus awaits tomorrow's school children on the threshold of the third millenium.

The demands and challenges of this new civilisation will be different from ours; to give one example, futurologists estimate that 70 per cent of occupations in the year 2000 do not yet exist (7; p.27). It has already become commonplace to change one's occupation in the course of a lifetime; in former times a worker who did this was thought to be of an unstable disposition. Knowledge and know-how will continue to evolve rapidly, and so will the techniques of learning. The current structural transformations of the economy and the production techniques being adopted across the world - brought about by the progress of computerisation and automation - are a sure sign that a growing number of adults will engage in continued education, either for learning new skills or in order to perfect the professional skills they already possess. Preparing both the young and adults to face these changes is becoming

one of the principal goals of education.

The implication of all this is that it is essential to foster, through education, active and open attitudes towards the world and the changing social environment, to develop creativity and intellectual autonomy, to cultivate the ability to analyse and to understand intricate problems by means of critical interpretation of information from diverse sources and of an awareness of the interdisciplinary character of these problems. It also implies that it is necessary to teach both the young and adults how to *exploit* various learning opportunities and situations.

These albeit limited observations permit a summary definition of lifelong education to be formulated:[1] for the citizen of today, and more so the citizen of tomorrow, forced to constantly adapt his roles and functions in society in order to remain master of his future, every stage of his existence will be purely transitory. It will simply not be enough for him to content himself with the body of knowledge transmitted to him by the school. Throughout his life he will have to continue to learn, to educate himself, to widen his knowledge, to acquire new know-how in order to respond to constantly changing needs. He will only be successful in his active life to the extent that he will be able to direct his own education, which will be a lifelong process.

In this perspective the function of (and accordingly the methods adopted in) school education must in turn be modified in order to meet the demands of this lifelong process of education. If, in the past, the school could satisfy itself with the transmission of a fixed body of knowledge and the formation of certain attitudes, which, supported by certification on completion of studies, equipped the adult throughout his future life, today's school must have as its goal the preparation of pupils for an adult life characterised by the necessity to constantly adapt to new situations and to constantly anticipate future needs. To quote a famous dictum: what is needed first and foremost is the facility of "learning to learn."

Implicit in the term "learning to learn," however is not the concept of the "perpetual school" (18) but rather that the school *should teach the young how to learn as adults*. It is after all no coincidence that educators of adults were among the first to develop the concept of lifelong education. As Bertrand Schwartz writes: "It is adult education that should,

and increasingly does, influence initial education, and not vice versa" (56; p.2). School teaching should therefore be reformed according to the educational needs of the adults.

In the perspective of lifelong education, school education and adult education should be an uninterrupted continuation. However, little articulation exists between the educational situation of a pupil in a traditional school and that of an adult, and it is this gulf that constitutes one of the critical zones for a system of lifelong education and hence merits particular attention here.

The pupil in a traditional school finds himself hemmed in by a highly structured and restrictive system. The objectives of his instruction are laid down by authorities of which he has no knowledge; the paths that lead to these objectives are determined in advance, and the pupil himself encouraged towards them with a firm hand by teachers chosen for him by others. His abilities and performances are judged by his teachers on the basis of tests and examinations, the results of which often determine in large part his future.

The adult finds himself in a very different situation[2]. Normally there is a particular motive for him to continue educating himself. Often this need is a vocational one, such as seeking promotion or the need for relevant training, etc. Sometimes continuing education appears to offer a remedy against boredom, a filling in of leisure time, in other cases it arises from a desire for cultural enrichment. Before launching into new educational experiences, the adult must analyse himself and his personal needs. He must himself take the initiative to resume studies, except of course in specific cases such as military service, company training schemes, etc. He then must define the goals he wishes to set himself and to choose the ways and means of reaching these objectives. Moreover, the subject chosen by the adult for study is often of a complex and unstructured nature, whereas at school the pupil is introduced to subjects having carefully ordered sequences, prepared with his level of understanding in mind. In addition, the pupil is continually being fed with new learning material, whereas the adult has to look for it himself, often without knowing the best sources. The adult has thus to design his own process of lifelong education, and will only succeed in doing so if he can act autonomously, with all this implies with regard to selection, self-orientation, self-discipline, self-evaluation, and so on.

From the foregoing it is clear that *motivation* and *autonomy*[3] are key concepts in lifelong education. They are what the school must above all develop if it is to both prepare the pupil for assuming in his adult life the educational freedom for which he will be responsible and enable him to make use of this freedom for the development of his personality. The school cannot do so unless it undergoes radical innovation in the content and methods of teaching, and re-orientates itself within the perspective of lifelong education. This concept of "de-schooling" should have as its outcome an educational system that anticipates andragogy.

An educational process such as that outlined briefly above calls for procedures which are more flexible, more dynamic, more open to the world and the environment and more individualised than mere learning. They should arouse the motivation, curiosity and individual drive of the pupil who must be induced to take his educational destiny into his own hands. He must learn to work, to search, to invent and to create instead of merely memorising theories and facts. He must not only be the recipient of education but must participate fully in the educational process. He must thus be prepared for the processes of self-information and self-education.

Essential to the concept of self-directed education is self-evaluation, whereby the pupil must be aided, oriented and guided towards being able to assess his own abilities, progress and weaknesses - only then will he be able as an adult to choose rationally from those possibilities of education and training that are offered the ones that are suitable for his needs and his abilities. The theory of lifelong education is based on the globality of educational problems - this systemic approach is also reflected in the new pedagogy. Since the phenomena and problems of the world are also of a global nature, tackling them demands a multidisciplinary approach. It is in this perspective that education should be conceived if it is to answer the real needs of the individual.

It is evident from what has been said above that the role of the teacher is undergoing radical change. From being a provider of knowledge the teacher is becoming an animator, often working in conjunction with colleagues from other disciplines. Traditional lessons are being replaced by study groups where pupils work together with their teacher on mutually agreed problems. Rote learning is no longer practised - instead, students learn to access various sources of infor-

mation, from the library, the radio and the television to the computer. They learn by working with their teachers and with each other, both in and outside the school.

The new system of education, central to which is the concept of lifelong education, is active and liberating. It promotes personal initiative and creativity, and aims at the total development of each individual. At the same time it is a collective enterprise in which the entire community participates (34 pp. 39-40).

In the perspective of lifelong education the function of the school may thus be summarised as:

- preparing the individual for a life in which he will be able to direct his own process of lifelong education;
- developing in him the desire to learn and promoting attitudes towards education and learning;
- developing creativity and autonomy;
- developing in the individual the ability to analyse and solve problems;
- developing critical thinking;
- encouraging the capacities for self-education and self-evaluation;
- Linking educational experiences to life;
- combining education and practical work;
- developing the capabilities of adaptation;
- increasing "educability" and developing a variety of learning mechanisms;
- exposing the pupils to broad learning areas;
- interlinking different educational experiences (inter-disciplinarity);
- teaching how to exploit all educative resources outside the school;

- teaching how to access various sources of information;

- teaching how to work in groups.

This is not a complete list; moreover some of the goals enumerated are closely linked to one another, whilst others overlap. As the objective of this study is not to develop an exhaustive theory of the concept of lifelong education but to examine its implications for school textbooks, the above goals may be grouped under five main aspects. In the perspective of lifelong education, teaching in school should;

- stimulate the pupil's interest (*motivation*);

- develop *creativity* and *autonomy*;

- encourage the pupil to cross the frontiers of his school environment and so develop open attitudes towards life (*transfer*);

- integrate different disciplines (*linkage*);

- initiate the pupil into various modes of learning (*flexibility*).

CHAPTER 2

School Textbooks

The school is as old as writing itself; the textbook, for its part, is as old as the school. The first classrooms were discovered in Mesopotamia, and the first-known school textbooks were written in the Sumerian language, in cuneiform script, on clay tablets.

> "In Sumeria, the school issued directly from the script, that cuneiform script the invention and development of which constitutes Sumeria's most significant contribution to human history,"

wrote the famous assyriologist S.N. Kramer (39). Much is known about these Sumerian schools, which, intended throughout their first phase (c. 2500 B.C.) to educate scribes, later became real centres of Sumerian culture and knowledge. Texts that have been found tell vividly of the daily life of the pupils who - very much like those of today - had to copy texts, learn them by heart, write from dictation, resolve arithmetical and geometrical problems, etc. [4].

Since earliest times, the school textbook has accompanied and guided teachers and pupils. Indeed, so commonplace has it been that is is perhaps ironic that it has rarely been the subject of profound analysis [5]. The development in recent decades of audiovisual aids has only in exceptional cases challenged the textbook as the didactic instrument par excellence:

> "To this day it absorbs 85 per cent of the world expenses for educational material" (52 p.15).

The three national reports commissioned for the present study bear witness to the widespread use of the textbook in education:

"The extent to which textbooks are used ... varies greatly ... Yet the textbook remains dominant in most American classrooms" (U.S.).*

"Secondary schools in England and Wales still tend to be very textbook oriented ... The textbook, in various forms is still the vehicle for their instruction of secondary school pupils ... The majority of teachers at secondary level, and to a lesser extent at upper primary level, will teach a given class with the aid of multiple copies of one textbook, supported by other materials ... In secondary schools the textbook still holds favoured position and it is one of the chief mechanisms through which schools aim to fulfil some of their prime educational objectives" (W).

"In a vast number of school systems the textbook symbolises learning and the school ... In spite of recent advances in educational aids like slides, filmstrips, audio- and video-cassettes, the textbook retains its traditional role as the major learning tool in a majority of school systems. It has recently attracted attention as it is recognised as being significant in terms of pupil achievement. A recent World Bank study concludes 'the availability appears to be the single most consistently positive school factor in predicting school achievement.' The World Bank has acted on the finding by being involved in massive textbook production and distribution projects in both Indonesia and the Philippines ..." (S).

School textbooks determine in large measure what goes on in class, a fact confirmed by several sources. Research carried out in North Rhine Westfalia in the Federal Republic of Germany has shown that 68 per cent of history teachers use almost exclusively the textbook for preparing their lessons (61; p. 133) In his practical guide *Conception and Production of School Textbooks* François Richaudeau states that

"it is the textbook that makes possible, facilitates, often imposes - or forbids - conceptions concerning the intellectual, cultural, ideological and affective

* The abbreviations (S), (U.S.), and (W) refer to the case studies of Singapore, the United States and Wales (*see Introduction pp. 2-3*).

> education of the future citizens. Depending on whether it is directive, semi-directive, informal, individual or collective, it will produce fundamentally different teacher-pupil relationships. Furthermore, even if its authors had not intended this, each textbook becomes in practice a model of intellectual functioning because it filters and organises the knowledge offered to the students. In some cases it favours an elitist conception of education, in others mass education" (52; p.49).

The school textbook assumes numerous functions. Firstly it normally provides the child with one of his first contacts with the printed word and the book [6]. This is particularly important and significant in developing countries where the school textbook is very often the first book in the home and may serve the parents as well as the pupils. It is one of the first, if not *the* first, sources of reading matter.

Reading remains the principal key to the world of knowledge, and the book, able to transmit and diffuse knowledge through print is at the centre of modern civilisation. Despite the development of audio-visual technologies, it remains the most flexible and most available source of information:

> "The independent pursuit of knowledge entails the ability to use the written text ... The teaching of reading in order to learn through reading is an essential consequence of the democratization of education" (43: p.4).

The school textbook creates - or should create - the habit of reading and continuous dialogue with the book. Through using the textbook the pupil can develop familiarity with books and, above all, skills in using books as indispensable working instruments for cognitive development. In the perspective of lifelong education, this is perhaps one of the most important functions of the school textbook. With his textbooks, the pupil not only learns to read but to read in order to learn. The question of whether learning by hearing or learning by reading is more effective has been the object of controversy, though of few serious studies (46). However, an excellent report compiled under the direction of Eric Lunzer and Keith Gardner on a project conducted by the Schools Council in the United Kingdom (43), examines on the basis of systematic observations about the use of reading matter in class (10-15 age group)

> "the capability of ... pupils to use reading for learning, the factors that determine their success or failure, the effectiveness of the teaching they receive, and the conditions that appear to be paramount in ensuring an improvement in teaching approaches and pupil competence."

While admitting that in a sense learning by hearing is easier because it is more direct and often better adapted to the understanding of a group of specific pupils and their circumstances, Lunzer and Gardner point out the following advan tages of learning by reading:

> "Text is permanent, not transient like speech. The well-schooled reader is not paced by the material. He sets his own pace ... It is the reader who accesses the mate rial when he wants to ... The reader need not be constrained by the order of presentation, as is the listener. Because he can go over the text as often as he chooses, and in whatever order ... the flexibility in reading pace is essential to profitable reading for learning" (43; pp. 24-26).

The study by Lunzer and Gardner demonstrates that, in British schools, reading in class is less frequent and more fragmented than might at first be supposed. By contrast, reading forms a major part of homework assignments, that is of self-learning. It would appear probable (though this hypothesis would have to be verified) that a similar enquiry in a developing country, especially among the classes that are conducted by teachers with poor qualifications, would yield different results. There are reasons to suppose that the less well trained the teacher is, the more his teaching relies on the textbook and the reading of it.

Two findings by Lunzer and Gardner merit particular attention in this context. One is that reading is more important at the secondary level than it is at the primary level. The other is that the school textbook is the most significant source of reading in the education system.

Lunzer and Gardner's study shows very clearly how important and how feasible it is to develop systematically the pupil's ability to learn by reading. This deserves particular attention in the perspective of lifelong education, since the book is the learning tool best liked by the adult involved in continuing education.

The school textbook presents to the pupil the knowledge to be acquired, and does so in a structured manner adapted to the level of his intellectual development. It is the pupil's principal source of information on the subject being studied.

In addition to the body of knowledge conveyed therein, the school textbook also transmits values and attempts to influence attitudes. Although much research has been done into the 'hidden messages' contained in a textbook, little is known about the mechanisms - if they do in fact exist - by which textbooks effectively influence the attitudes of their readers beyond arousing transitory sentiments. The textbook is primarily a working instrument for the pupil, above all an aid to individual study, as the research conducted by Lunzer and Gardner has shown. It is, moreover, an instrument perfectly adaptable to every individual's own rhythm. With the aid of the textbook, the pupil recapitulates, assimilates and further internalizes what he has learnt in class. The textbook can also ask him questions and induce him to supplement the information it contains. More important still is that a good textbook encourages the pupil to think - it stimulates critical reflection.

> "The effective use of reading involves thinking as well as reading. At its best, it is a conversation with the text" (43; p.313).

By raising the problems, the textbook teaches the pupil to develop his aptitude at resolving them. Individual or group work with the aid of a textbook is perhaps the most significant prefiguration of the most frequently occurring learning situations in the lives of adults.

The school textbook, however, does not just convey knowledge and values and attempt to influence attitudes - it also adopts a certain pedagogical approach. The manner in which the subject to be studied is presented, selected, ordered and structured, the questions it does or does not raise, the references it does or does not make to other sources of information, to other disciplines, to the social and cultural environment of the pupil - all these elements and many more influence the educational process, largely determine what happens in class and affect the learning habits the pupil acquires throughout his studies. The school textbook may be authoritarian and uni-directional, like a catechism or a military

instruction manual, or it may be open, imaginative and invite the pupil to participate in wide-ranging educational experiences.

In contemporary education, the school textbook is no longer the only didactic tool, but forms part of a resource of learning materials alongside workcards, slides, films, radio and television broadcasts, language laboratories, not to mention visits to museums, zoological gardens etc. On this subject S. Gopinathan remarks:

> "The nature of school instruction has slowly changed, most dramatically perhaps at the lowest levels. There is much emphasis on activity-based learning based on the assumption that the child must be an active participant in the learning process. Thus play-way, self-paced learning, to name but two methods, are to be found at the elementary levels in many school systems, though the extent of innovation and success has tended to be variable. This is thus a recognition of the importance of both book and non-book aspects in the learning process.
>
> Textbooks have been affected by this change, and in developed countries, multi-media kits, activity packs, resource units, programmed texts, topic books and workbooks have found their way into schools. However it is also true that the traditional textbook has attempted within its constraints to include within its covers some of the features of the 'new learning style', and it is this that justifies our study." (S)

The school textbook is thus a complement to the other means of instruction.

Up to this point reference has largely been made to the interaction between the school textbook and the pupil; it is the teacher, however, who determines the use the textbook is put to. The relationship between the teacher and the textbook would appear an extremely complex one. On the one hand the textbook - especially the "handbook for the teacher" which accompanies a large number of textbooks - largely determines the content and the mode of instruction dispensed by the teacher. On the other hand, research seems to indicate that many teachers do not regard the textbook as an indispensable tool of instruction:

> "Secondary teachers questioned ... felt by and large that reading often plays an important part in their lessons, but they were reluctant to rely on it as the chief vehicle for learning ... a commonly expressed point of view that reading alone constitutes one of the least effective ways for children to acquire vital information" (43; pp.34-35).

The part played by the school textbook with regard to pedagogical innovation has long been the subject of animated discussion. It is this writer's view that, despite the multi-faceted nature of innovation or school reform, the school textbook can be instrumental in bringing change - hence its importance for the process of lifelong education.

The production of school textbooks, however, does not take place without a fair measure of constraint. Whether produced commercially or issued by state authorities, textbooks must invariably comply with a number of requirements which determine amongst other things their scope, content, pedagogical approach, etc. As such, they are a reflection of the curriculum[7] whose objectives they embody. A rigid and conservative curriculum will have no place for innovative textbooks. A curriculum which embodies the concept of lifelong education will bring forth textbooks which reflect this concept.[8]

Examinations and the need for certification exert their own influence on the nature of the school textbook. An unduly examination-oriented educational system will produce textbooks designed to transfer knowledge, imbued with an encyclopaedic quality which stifles active participation in the learning process.

A further major constraint on the production of school textbooks is an economic one. As the Singapore study points out:

> "A simple enough example is the use of colour. Publishers and printers know full well that colour brightens up a cover and text, that diagrams are often more effective when colour is efficiently used and that even text organisation can be clearly delineated when a second colour is used to highlight sections, headings, summaries, etc. But the use of colour pushes up costs and these will be passed on as higher prices of textbooks, and this often invites criticism from ministries of education." (5)

The cost factor is not confined to developing countries - industrialised countries are also having to forego innovation and reform owing to the inevitable cutbacks in educational spending brought about by economic recession.

In countries where school textbooks are commercially produced and thus subject to competition and market forces there would appear to be at the same time both an impetus to and a limitation on the development of innovative textbooks. As the American study observes:

> "To be successful, textbook publishing companies must always be aware and responsive to the educational trends and needs of the public. For it is the educators themselves that guide and direct which texts the book company will publish and in what form... Book publishing companies live by their reputations and their reputations come from the books they publish. Therefore, the publisher's effort is directed towards the best possible book. The success of a book company ... depends on how well the publisher discerns the needs and trends of the market." (US).

It would be true to state, however, that educational publishers shrink from developing school textbooks that are too radical in case they prove difficult to sell.

Insofar as cultural factors and textbooks are concerned, the Singapore study makes some interesting observations:

> "We need to know what sort of influence certain cultural features of a society can have on the appreciation and use of textbooks. Many Asian societies have had strong oral traditions and it is possible to see this in the memorisation and recitation that pupils are made to do in schools. Is it possible that the authority and awe with which the great religious texts - the Koran, the Gita, the Analects, the Torah - are endowed somehow serves to sanctify print with the result that the authority of the book is seldom questioned? If one links this with the fact that teachers are figures of authority especially in the traditional classroom, it is possible to see just how much attention we have to pay to the context in which even the best designed textbooks are used ...Specifically, we must recognise - even if we claim that this is a matter of degree -

that learning styles, attitude to print, the way in which the teacher is regarded, what is 'seen' as learning and what is not can be different across cultures ... Cultural differences must be borne in mind in assessing the role of textbooks in the context of lifelong learning in more tradition-bound societies." (S)

CHAPTER 3

School Textbooks in the Perspective of Lifelong Education

In Chapter 1 a number of aspects of lifelong education were mapped out; in Chapter 2, the part played by the school textbook in educational practice was outlined. What remains here is to establish a link between these two areas.

For a global educational reform founded on the principles of lifelong education to become a reality, the school must re-orientate itself by opening up to the adult world, by becoming a link in the educational network. This would require changes in the content and processes of school-based education, teacher training, evaluation - to be precise, in curricula, syllabuses and in particular school textbooks. What then should the characteristics of such textbooks be?

Taking into account the role of the school in the perspective of lifelong education as outlined previously, a "good" textbook should:

- have a bright and attractive appearance;
- arouse the pupil's curiosity;
- use varied techniques in order to engage the pupil's feelings and stimulate the pupil's intellect and imagination;
- enable and encourage the development of an open attitude with which the pupil can interpret the world in which he lives, at local, national and international levels;
- encourage the pupil to think about people of other age groups and in a variety of jobs and to take an interest in adult careers;

- encourage the pupil to use a wide variety of sources of information: libraries, such institutions as musuens or zoos, newspapers, media etc.;

- awaken and develop an interest in creativity: drawing, crafts. etc.;

- convey appropriate information and enable the pupil to apply his knowledge and check what he has learned;

- serve as a bridge to other disciplines enabling the pupil to see interrelationships between subject areas;

- permit both the teacher and the pupil to use it in a flexible manner;

- be capable of interesting adults as well as children and be used both at school and at home.

These characteristics may be catergorised thus:

Format - to include size, use of colour, typeface, lay-out, binding;

Presentation - to include sequencing and structuring of material, factual content, variety in presentation, case study, cross-references;

Language - the relation to target group, clarity, application of knowledge, definition, glossary;

Methodology - the fostering of critical thinking and problem-solving skills; use of various sources and methods;

Achievement - self-direction techniques, self-assessment, self-awaremess.

If these characteristics are combined with the five main aspects of the concept of lifelong education mentioned in Chapter 1, the following picture emerges:

Stimulation - interest through presentation, content;

Creativity/ Self-direction - self-instruction, self-assessment;

Transfer - linking educational experience with life, combining theoretical and practical activities, open attitude to life;

Linkage - showing links with other disciplines, interdisciplinarity and multidisciplinarity;

Flexibility - for flexible use by teachers, pupils and parents, initiating them into various modes of learning.

may in turn be drawn together into the following matrix:

	Format	Presentation	Language	Methodology	Achievement
Stimulation					
Creativity/ Self-direction					
Transfer					
Linkage					
Flexibility					

In Part Two of this study, this matrix serves as a framework for the analysis of specific examples of textbooks which develop in the learner the abilities considered essential for a lifelong process of education.

Part Two

Characteristics of School Textbooks in the Perspective of Lifelong Education

CHAPTER 1

Textbooks Examined by the Three Teams

The three teams from Singapore, the United States and Wales analysed textbooks in the fields of social studies, geography, humanities and science which were in use with pupils during their last three years of compulsory schooling (*See* Appendix 3). The texts chosen were thought to provide particularly good examples of how textbooks might foster lifelong learning skills. The teams were anxious to find out whether the characteristics of textbooks outlined in Part One of this study were actually found in practice and, if so, what the most important of these characteristics were.

The analyses, though systematic, were more of an exploratory rather than a strictly scientific nature. They thus invariably contain a good deal of subjective material. The approach of this part of the study is pragmatic, its aim being not only to show that the characteristics enumerated tentatively in Part One can be found, but to reveal something of their nature.

In order to synthesise the findings of the three national teams in as illustrative a way as possible, the reporting format indicated by the matrix will be followed. Before this is done, however, the sources, the three national studies and the textbooks analysed in them will be briefly presented. In this way the reader will be able to find out some background information about the educational systems of the three countries together with how their textbooks are produced, selected and used.

1. *The Singapore Study*

Two textbooks were examined: *Certificate Physical Science* (Book 2) by A.J. Mee and A.C.E. Jarvis, and *Human Geography - East and South-East Asia and Australia* by C.M. Speak, both

published by Heinemann Educational Books. The first is printed in Hongkong, the second in Singapore - both are used in Singapore and beyond. *Certificate Physical Science* is in use in Singapore

> "because it meets the syllabus requirements of the Cambridge Overseas Examination Syndicate. The fact that its text and illustrations are neutral in not being biased towards any one country enables the book to be sold widely in many overseas ex-British territories." (S)

A certain lack of relevance with respect to the environment of the pupils is inevitable in this case, not uncommon in developing countries, where commercial considerations obtain.

The philosophy of *Human Geography* is spelt out in the 'General Comments to Users of the Book.' It emphasises the significance of relationships and patterns, the latter "of distribution and movement both in time and space" and an awareness "of how these things change and interact." It is the view of the author of the book that "the study of the relationship of man to the land he occupies is of great importance to the geographer." The author sets out to operationalise the concept of interrelationships through discussing, relating and evaluating geographical phenomena via a systems approach.

Unlike most regional or human geography textbooks, *Human Geography* does not begin with the description of the natural environment. In a more arresting and immediate way it begins with 'People and Problems of Urban Growth.' In places like Singapore and Hong Kong, in the powerful cities of Jakarta, Kuala Lumpur and Bangkok the human and daily relationships of man to man, the difficulties found in trying to earn a living, the flow and movement of man and goods are more immediate and significant than the relationship of man to land. Subsequent sections are entitled 'Minerals,' 'Power and Industry,' 'Rural Settlement' and 'Land Use.' The final section, 'The Natural Background,' although coming at the end, is designed not as a passive backdrop but to provide an examination of the challenge and potential of the natural environment. Thus vegetation is discussed under the heading 'Difficulties of Exploiting the Tropical Rainforest - A Study of Indonesia,' natural features such as rivers are likewise studied in a specific context as in 'The Huang Ho - Flood Control' and 'The Mekong Development Scheme.'

The 'General Comments' provide further guidance on the use of the materials:

> "it is not intended that the sections should be used in the lettered order. The arrangement broadly follows the topics suggested by the syllabus, but these are open to interpretation. It is hoped that teachers will use the sections as seems most logical to them and following the needs and interests of their students as they arise."

An original and interesting approach is being attempted, unusual in textbook design, which breaks away from conventionality at this level in asserting the value of patterns and systems. By opting to begin with the urban environment a necessary corrective to the usual environment-biased approach is provided and natural phenomena - rivers, mountains, vegetation - merit detailed attention within the context of man's relationship to the environment. Such an approach, it can be claimed, will arouse and stimulate the pupil's mind and establish content relevance to pupil needs and experiences and establish linkages. In sum, a positive view of learning is promoted.

Certificate Physical Science is intended for use in the last two years of a physical science course. The subtitle 'Science Applies its Theories' provides a clue to its pedagogic philosophy, which is spelt out in the preface:

> "The course attempts to present the material of most physical science or physics-with-chemistry courses in an interesting and modern way ...Theoretical knowledge is put to work in the real world. The emphasis here is not on presenting the pupil with further fundamental concepts. Instead we now concentrate on the way in which science has influenced industry and the home ... An essential part of any science course is observation and discovery by experiment. We have included many experiments, the majority of which are intended to be carried out by the students themselves ... Each chapter ends with a precise summary, and a number of questions. Many of these are of a type which do not merely ask for a recall of facts, but require the application of principles to new situations."

The two textbooks as briefly described here by their respective authors clearly contain some of the characteristics listed at the end of Part One. Nevertheless, both books look

rather traditional compared with those selected for analysis by the Wales team. This may be explained by the educational system of Singapore, which is highly centralised, the Ministry of Education exercising tight control over procedures, policies, standards and textbooks. Teachers have far less freedom to alter and innovate than they do in school systems like those in the United States. The educational system in Singapore is also very competitive and examinations are a major hurdle at every level. Certification is very much valued and a large amount of continuing education is geared towards increasing skills for professional/vocational advancement. One major consequence of this examination bias is that syllabi laid down by the Ministry are closely adhered to when textbooks are developed. Indeed, some books can be said to be no more than fleshed-out syllabi. Schools for their part are required to select basic texts from an approved list (offering around 4 to 6 texts for each school subject), which the Ministry compiles using the services of several review panels made up of school teachers to evaluate books. Such a process does little to reward innovation.

2. *The U.S. Study*

For the U.S. study a number of textbooks were analysed in the fields of social studies (including civics,) United States history and world history (8 textbooks) and biology (4 examples) intended for use by high school students in grades 10, 11 and 12. In most cases teachers' guides and student activity guides accompany these textbooks. The U.S. team presented its findings in an already synthesised format - thus the U.S. study

> "does not seek to become a critique for any single textbook, nor is it an exhaustive review of those examined."

As reported in Appendix 1, the U.S. team used not only the matrix drawn up but a further tool for analysis in its examination of the textbooks selected:

> "This instrument asked the reviewer to tally the frequency with which a textbook explicitly asked its user to develop or use an attitude or skill indentified as essential to successful lifelong education."

Another unique feature of the study made by the U.S. team is its attempt to determine how students perceived the books

under analysis. As their study rightly states:

> "the lifelong learning potential of textbooks might be obvious to educational researchers, but that potential might be totally lost on the ultimate beneficiaries of the study - the students."

In the following pages several of the findings of a limited survey of four classrooms are outlined.

In the United States, where each of the 50 states is responsible for organising and regulating its own education system, textbooks are published by private companies. Adoption policy and procedures, however, vary from state to state. At the time of writing, 26 states are what publishers call "open territory" states, where each local or county school district makes its own decision about which texts are approved. In the remaining states, the governing board for the public education system has established policy and procedures for selecting the textbooks.

> "The extent to which textbooks are used once adopted by the state or local school district varies greatly. Teachers may have considerable latitude in the selection of other classroom materials. An informal inquiry of two fairly large districts in the western states indicated that many teachers use adopted texts as reference material and choose to rely on current articles and books, films, video and audio, tapes, guest speakers, other resources and class, group or individual projects as classroom teaching tools. Yet the textbook remains dominant in most American classrooms." (U.S.)

During the past two decades the social studies curriculum in the United States has undergone much change and thus the selection of textbooks in this area is of particular interest to the present study. The new social studies programmes emphasise learning about issues and ideas and how to deal with them, rather than acquiring factual information. They seek to help students find relevance through providing a framework of theories and concepts that aids the students in organising the factual information presented. Content, then, is organised around central themes and concepts such as power leadership and around problems and issues such as freedom of speech, legal rights and justice.

3. *The Wales Study*

On first looking at the cover of *It's a Matter of People*, a British textbook for social studies (Fig. 1), one realises that the education system of England and Wales must be a very open one; it is in fact quite decentralised. The British education system operates on the basis of the distribution of responsibility between central government, the local education authorities and the teaching profession. It is, therefore, correct to describe it as a "national system locally administered," with the central agency, the Department of Education and Science, being a major operative partner rather than its sole controller. The system gives scope for local as well as national initiative, allowing authorities, schools and teachers the freedom to develop their own particular approaches.

Since the mid-1950's, the trend towards the establishment of comprehensive schools, catering for all children in the age group without reference to ability or aptitude, has gained momentum. At the time of writing over 80 per cent of all maintained schools in Wales are already fully comprehensive.

Schools in the United Kingdom exercise considerable freedom of choice in deciding which textbooks they will buy and use. Neither central government nor local education authorities prescribe which textbooks a school shall use in its classrooms, the choice of textbooks usually being left to heads of department of the subjects concerned. The individual teacher for her part is responsible for the content and method of day-to-day teaching. As the Wales study and the textbooks examined by the team demonstrate, these are conditions which greatly favour the development of innovative textbooks. Those examined by the Wales team are in the fields of social studies, the humanities and science.

Writing about *It's a Matter of People*, the Wales team states that:

> "In many ways this is a remarkable example of how to encourage pupils to become lifelong learners, by introducing themes and activities which are likely to be of direct interest to adolescent pupils, by developing in pupils an eagerness to learn through its variety of approaches and excellent illustrations and by encouraging pupils to discuss, to think of how material presented relates to their own lives and the lives of others, to develop self-sufficiency and independence." (W)

IT'S A MATTER OF PEOPLE
Jane L. Thompson
DON'T SEE WHAT IT'S GOT TO DO WITH ME.
IT'S ALL ABOUT PEOPLE, BERT— JUST LIKE US!
SECOND EDITION
Fully updated

Fig.1. From Jane L. Thompson. *It's a Matter of People*. London: Hutchinson. Front cover.

The book designed for 13 and 14 year old pupils beginning a social studies course, forms a base from which pupils may proceed to either C.S.E. or to 'O' level [9]. It can also be used with non-examination 15-16 year old secondary school pupils (i.e. less academic learners).

It's a Matter of People introduces eight topics of immediate interest and concern to young people and the approach is both lively and imaginative, with a combination of factual and visual material, framed within a case-study approach. The eight topics dealt with are: 1. Schools ain't what they used to be. 2. The trouble with teenagers. 3. Moving house. 4. Who cares? 5. Women at work. 6. Problems we don't talk about. 7. Read all about it. 8. It's a small world. A link between topics is developed by the continual appearance of a cartoon couple, Bert and Ethel. Bert is the stereotype bigot - exaggeration abounds but comments and mannerisms are introduced to which the pupils can react and which provide excellent material for discussion.

The second example analysed in the Wales study is the Schools Council Project *Geography for the Young School Leaver* (later retitled *The Avery Hill Project*). The project has resulted in the production of sets of pupil resources and associated teacher guides and audio-visual material for three themes, namely 'Man, Land and Leisure;' 'Cities and People;' 'People, Place and Work.' The analysis of the Wales study concentrates on the second of the three themes, its objectives being categorised under three headings: ideas, skills, and values and attitudes.

The key ideas serve as focal points for the selection of content. The factual element, often presented by means of case studies, enables pupils to discover for themselves the underlying ideas or concepts which are developed in sequential form throughout the theme and are exemplified in various real contexts. Following on from the understanding of ideas and the learning of facts other intellectual skills are fostered, for example the understanding and interpretation of data, the analysis of statements, the ability to develop judgements, and the skill of communication, whether it be by means of written text, diagram or oral discussion. Also fostered are social communication skills resulting from group activity. For the third category of objectives, issues are raised which serve to lead to discussion of the values which determine attitudes.

The theme 'Cities and People' presents a number of the problems of living in cities. The Wales study focuses on three units within this theme. Unit 2 - 'City Environments' - examines a number of residential areas, investigating the quality of the environment and the adequacy of provision to meet the needs of the community; these areas are then reviewed as elements in a total urban structure. Unit 3 - 'People on the Move in Cities: The Daily Rhythm' - investigates the dynamic aspects of urbanisation: the problems of the movement of people to work, services, shopping and leisure. Unit 4 - 'People on the Move: a Place to Live' - investigates the long term movements of people and asks such questions as: Why do people move into towns? Why do they migrate out of towns? How do they move spatially within towns? thereby raising problems of urban sprawl, segregation, etc.

The third item in the Wales study is the analysis of the *Nelson Humanities Scheme*, comprising three titles: *Place to Place* by A. Adams and E. Jones; *Across the Frontier* by G. Boon and M. Johnson; and *Promised Lands* by T.B. McCulley, which represent the traditional disciplines of English, geography and history respectively. *Place to Place* contains selected texts: prose and poetry on travelling, exile, migration, barriers, discovery, etc.; *Across the Frontiers* describes different types of limits, frontiers, boundaries, different places to live in, various communication systems, etc.; *Promised Lands* deals with the slave trade, the building of railways, the United States as a nation of immigrants, etc. The scheme as a whole is thus *multidisciplinary* in so far as three different disciplines are isolated, with the pupil learning something about each in turn, and *interdisciplinary* in that three disciplines are brought together in relation to a single topic. Furthermore, by attempting to consider globally one basic human impulse - that of human movement - the scheme can be said to be an integrated one.

The scheme was designed with C.S.E. and non-examination courses in mind, the original intention being to publish five phases, one for each year of compulsory secondary schooling. Only three phases have appeared, however, mainly because the syllabus of fourth and fifth-year pupils is governed by set texts prescribed by examination boards. Phase three is clearly aimed at pupils in their third year of secondary schooling who are of average and below-average ability.

> "It is crucial to grasp that the teaching of Humanities or Integrated Studies need not necessarily be in opposition to a specialised area of study. The two activities need not be mutually exclusive, since specialised areas of interest exist whether they remain separate or are folded into others. This is true of the *Nelson Humanities Scheme* which allows the teacher to assume either the traditional role of the teacher of English, geography or history, or alternatively to adopt the team-teaching role of the Humanities teacher." (W)

From the field of Science the Wales study analysed three titles belonging to the *Science at Work* series (Project Director: J. Taylor). This scheme is a series of 12 science units for 14 - 16-year-old less-able pupils. A unit is designed to provide a complete half-term course of study for a normal school timetable (approximately three hours per week). The series contains such titles as: 'Fibres and Fabrics,' 'Electronics,' 'Cosmetics,' 'Photography,' 'Pollution,' and 'Domestic Electricity.' Three of these units were analysed, namely 'Electronics,' 'Photography' and 'Cosmetics.' They are in the main a typical representation of the whole series.

Each unit consists of a 32-page large format, two-colour pupil's book and a 16-page teacher's guide. The pupil's book provides information, practical investigations and questions, the aim being that pupils should work at their own pace. Each investigation starts with a list of the apparatus required; then follow a statement of its purpose and instructions (in words and pictures) for carrying out the investigation. Finally the pupils are asked questions which help them to record their results and to draw conclusions. In some cases investigations are followed by appropriate information from the world outside the classroom, mostly from the world of work (Fig. 2).

At the end of its analyses, the Welsh team makes the following interesting observation:

> "All of the books analysed were aimed at pupils in the last three years of secondary schooling (i.e. aged 13-16). None of the books, however, was the type of text which could be used with G.C.E. 'O' level pupils in their examination year and one question which merits discussion seems to be: Are the ingredients of lifelong education more likely to be found in the textbooks designed for younger and lower-ability secondary school pupils, rather

than in textbooks which are specifically written for examination purposes?." (W)

It might be argued that it is the less-able pupil leaving formal education at the end of his period of compulsory schooling who most needs to be well prepared for lifelong education. Whatever the answer to the question put by the Wales team, a large number of studies have shown that the longer a person spends educating himself the more prepared he is to pursue learning and try to expand his knowledge (56; p.25).

11 A radio receiver

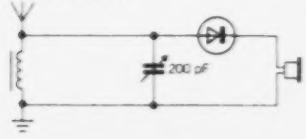
Apparatus

★ circuit board ★ several connector links ★ aerial (30 m) ★ diode OA91
★ coil with ferrite rod core ★ connection to earth ★ variable capacitor 200 pF
★ mic/earphone

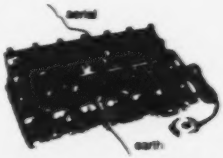
(Symbols are given at the back of this book.)

You are going to build a simple radio receiver.

A Build this circuit.



B It will look like this.



C Fasten the aerial (at least 30 m of copper wire) above head height. Hang it in a straight line. It does not have to be very high. Fasten the earth firmly to a bare copper pipe or tap.

D Tune the receiver by moving the ferrite rod inside the coil until some sound is heard. Then turn the tuning capacitor to improve the volume.

Where does the energy for this receiver come from?

What circuit would you add on to improve this receiver?

Fig.2. From John Taylor (ed.) *Science at Work Series: Electronics*. Harlow: Longman (Addison-Wesley)

CHAPTER 2

Stimulation

Motivation is of paramount importance for lifelong education: it influences learning success in school, fosters interest in non-formal education activities, and is a necessary prerequisite for adults wishing to continue their learning. In this connection Dave writes:

> "Lifelong education requires the will to learn. An important aspect of the processes of education, then, is their capacity to arouse motivation to learn and to continue learning ... Of key importance are factors such as flexibility, belief in one's own ability to change, confidence and hopefulness rather than fearfulness and avoidance of the new" (21; p. 375).

Whether adults continue to learn only when they seek an answer to specific problems, a view supported it would seem by Schwartz and others (56; p.8), or whether some "inner" motivation exists which is reinforced by the school experience is a matter of conjecture. There is no doubt, however, that motivation is closely related to previous learning experiences. If learning in school has been a positive experience, if it has proved to be pleasant, interesting, useful and successful, then adults will be better motivated to continue their learning than if they have found school boring and frustrating.

> "Schools should be evaluated in terms of their contribution to later adult learning. The kind of pupil properties which could be assessed include motivation for further learning." (16; p. 18/18).

Cropley states in this context:

> "Learning in the classroom is heavily dependent upon the

> establishment of appropriate *motivational climates* ... A major factor in efficient learning is a desire to learn. But the development of positive motivation for learning is itself a psychologically complex phenomenon. It involves ... acceptance by the child that the material which is being learned is in some way worthwhile. The cry that classroom material is not relevant, or that it has no application to the child's real life, is an example of focus on this issue" (15; p.41).

Statements such as these clearly beg the question: Are schools satisfying the expectations of their pupils? Inquiries carried out on this subject in the United Kingdom, the Federal Republic of Germany and in the United States all appear to point to a huge disparity between what teachers felt their goals were and how these goals were perceived by their pupils and their parents. With regard to the United Kingdom:

> "Both the 15 year-olds and their parents thought that school ought to provide knowledge and skills to enable young people to get the best jobs and careers. Teachers on the whole did not accept the achievement of vocational success as a major objective of education. What most of them thought important was the development of character and personality, the inculcation of ethical values and their maturing of personal relationships ... It is the disparity between what people think education can do for them and what educators choose to provide that leads so many young people to leave school as soon as they can" (9; p.p. 139, 141).

Boredom amongst pupils is a major factor in education today, as borne out by the findings of the U.S. study by research carried out in the Federal Republic of Germany (10).

Clearly, the question of motivation is a very complex one, and what precisely it is that motivates the individual has not yet been sufficiently explored. The aim here is simply to give some practical answers to questions such as: How can the pupil be stimulated by textbooks? How can textbooks attract the pupil and make him want to study with pleasure and interest? How can textbooks arouse the curiosity of the pupil? Indeed, how can textbooks prevent the pupil from becoming bored?

1. Attractive appearance

Publishers and their book designers have developed a wide range of techniques to attract potential readers (and thus buyers): eye-catching covers, colour photographs and illustrations and exciting layouts created with the help of graphic devices such as tints, photo cut-outs, reductions and enlargements. These same techniques are brought to textbook design in order to stimulate the pupil, although how many techniques are used varies according to the circumstances obtaining in the country concerned.

At first glance the sample of textbooks chosen by the three teams shows very few common features. They vary greatly in size: from 32-page booklets selected by the Wales team to the more than 750-page hardcover books chosen by the U.S. team. However, all have illustrations, mostly photographs, set within a colourful cover. There are also noticeable differences in the quality of the binding. Both the *Science at Work* and *Place to Place* series have wire-stitched bindings, and it must be asked whether this is sufficiently strong to withstand constant handling by children. In contrast, the U.S. books have strong hard covers, which of course raises the question of costs. In the perspective of lifelong education textbooks, particularly reference books, should be sufficiently robust that they may continue to be consulted long after the pupil has left school and also parents, especially in developing countries.

In the three national studies some interesting remarks are made about the *number of pages* and the *size* of textbooks:

> "A lengthy and bulky book would dismay children. A slower pupil confronted by a massive chunk of information is immediately discouraged." (W)

This is confirmed by the U.S. study:

> "Most of the books we examined were bulky and heavy. This aspect of the format is problematic. Large-size and weighty textbooks may work against stimulating interest and curiosity among some students, no matter how appealing and colourfully presented the material appears to be."

It concludes:

> "The size of the text should be manageable for the

students. The majority of students surveyed felt their books were bulky and too heavy. Sheer size and weight were intimidating to many students." (U.S.)

All textbooks examined had *illustrations* comprising graphics, photographs, reproductions of paintings, charts and the like, and most made use of more than one colour: all those selected for the U.S. study, one of the two chosen by the Singapore team, but none of those picked by the Wales team. (In the series *Science at Work* a second colour tint is used as a background to some of the text). Referring to *It's a Matter of People* the Wales team comments:

"Although there is a heavy concentration upon the usual aspects in the text, no colour is used, but this does not detract in any way from its general attractiveness. Indeed it seems to indicate how effective and attractive black and white layout can be when used boldly, and when variety of illustration and print size are carefully thought out by the publishers." (W).

Cartoons are used to great effect throughout the above book (Fig. 3), as are photographs and drawings. The use of newspaper cuttings is also a common feature (Fig. 4).

In many modern textbooks *colour* is widely used, not simply to stimulate pupils' interest, but more importantly to fulfil functions such as making charts or graphs more readable, giving more precise information, etc. In this context the Singapore study states:

"We certainly cannot ignore that illustrations have a decorative function in children's books, attracting and stimulating by their colour and vividness. Further they can add immensely to a spartan text, suggesting mood, allowing free rein to the youngster's imagination. In school textbooks, however, they serve other vital functions. They can serve to interpret and explain the text, giving a visual dimension to new terms (normally by means of diagrams), to explain processes, via pictures to convey ideas and environments the pupil is unfamiliar with, to add interest, to provoke and stimulate (as with pictures used to engender comment and initiate writing in textbooks for language work). It is not of course suggested that each type of illustration serves only one purpose or that pictures are necessarily superior to text. The old adage

EEEK!
SHUTTH
ES DOING 'IS OWE WORK
I'M ANALYSING THE WORDS OF THIS POP SONG THEN I'M GOING TO WRITE ONE OF MY OWN AND MAKE A POSTER TO ADVERTISE IT.
CALL THAT ENGLISH OWEWORK? WHAT ABOUT YER GRAMMAR AND LEARNING TO SPEAK THE QUEEN'S ENGLISH LIKE WOT I DO.
I WANDERED LONELY AS A CLOUD THAT FLOATS ON 'IGH O'ER VALE AN' 'ILL WHEN ALL AT ONCE I SAW A CROWD A 'OST OF GOLDEN DAFFODILS.
THAT'S ENGLISH THAT IS POETRY. THAT'S WOT YER SHOULD BE LEARNING.
BUT WHAT'S IT MEAN DAD? WHAT'S IT GOT TO DO WITH ME?
WOT IT MEANS THICK 'EAD AS GOT NOTHING TO DO WITH IT. IT'S A POEM. IN ENGLISH YER LEARN TO SAY POEMS.

Fig. 3. From Jane L. Thompson. *It's a Matter of People*. London: Hutchinson.

Big rise in blood lead level at road junction

Disturbingly large increases in the blood-lead levels of children and adults living around Spaghetti Junction, the large motorway interchange in Birmingham, were reported to the city council at the weekend.

Here are some real stories about different sorts of pollution.

1 Make a list of any sources of pollution in your neighbourhood.
2 Is there anything being done to stop the pollution?
3 What do you think should be done to stop it?

Three beaches are closed through pollution

Three of the five beaches round Cherbourg have been closed by the local authorities because of the polluted waters.

The disclosure last week of 37 seaside resorts with water unfit to bathe in, has provoked a great deal of loud protests from the towns named. Mayors are claiming that they have sewage pumped on to their beaches from other towns, which are paying nothing towards cleaning them.

Angry mothers protest at traffic pollution

ANGRY mothers on a busy London trunk road went out in force this morning, armed with plastic bags and string, and collected samples of polluted air which, they claim, their children have been breathing since birth.

The bag brigade is the latest in a string of protests against the delay in building the A2 relief road in Eltham between Falconwood and the Blackwall Tunnel.

They collected samples of air on the road, tied them with string and took them to the Department of the Environment. Their local MP Mr Peter Bottomley went with them to the Department.

The mothers, who say traffic conditions are "appalling", are calling for blood samples from their children to be taken and analysed to find out just how much lead has built up as a result of living next to the road.

Fig. 4. From Jane L. Thompson. *It's a Matter of People*. London: Hutchinson.

> of teaching that a picture is worth a thousand words needs to have added the qualification that such a truth depends upon the picture. Further, in order to be effective pictures ought to be evaluated by such criteria as size, clarity, visual interest and use of colour. Even such a factor as location in text can serve either to enhance or retard an illustration's effectiveness. One final point needs to be noted. We live in an increasingly visual world; with the advent of television visual literacy is as important as print literacy. Much information is today presented in the form of tables, graphs and maps - used intelligently they present data and relationships succinctly. In the context of lifelong education such visual literacy is important for it enables continual learning to take place and allows utilisation of data from a variety of sources by providing an essential skill." (S)

However the Singapore study adds a note of caution:

> "There is no evidence that the use of colour produces greater learning; effectiveness of colour ought to be carefully considered as it adds to the cost of production. Further, improved learning is only likely to occur when the use of colour is integral to the concepts to be learnt. It is clear that colour well used adds a measurable degree of realism and help in drawing attention and heightening interest. But poor and inconsistent choice of colour is more likely to confuse." (11)

Layout and *typography* can add to the attractiveness of a textbook. An uncluttered layout helps the pupil to find his way through the text, whilst clear bold headings attract the interest of the reader.

> "Variety in the presentation of content, if effectively used, adds to interest and motivation." (S)

Pages packed full of text run the risk of frightening or boring pupils even before they start reading:

> "The motivation of pupils is often switched off by the rather dull and repetitive nature of many of the texts used. The variety and attractiveness of the layout can provide the initial motivational stimulus on which the content element must then be built." (W)

Attractive design is not, of course, sufficient - a dull text does not become better nor more stimulating even if the book does have a lifely appearance.

2. Interesting and stimulating content

A striking or unusual picture in a textbook arouses curiosity and stimulates interest, as does a surprising choice of subject. 'Cosmetics' as a subject of a science textbook is certainly unusual, and to find in the social studies textbook *It's a Matter of People* a chapter discussing "the trouble with teenagers" (pp. 20-35) is also rather innovative. Not that these are the only examples one might draw on. In the history textbook *Promised Lands* a chapter is devoted to 'The Railway Navvy,' surely an intrinsically interesting character for the pupil. Furthermore, to start a geography textbook with considerations about the problem of cities as is done in the Schools Council scheme *Geography for the Young School Leaver* is clearly an approach designed to arouse the pupil's interest.

More important, however, than the effect of surprise to stimulate curiosity is the relevance of the subject matter:

> "Directing the learning experiences to the needs, interests, perceptions, aspirations and abilities of students is critical to the success of a lifelong learning-oriented curriculum and essential to helping students see the potential value of education beyond the years of compulsory schooling." (U.S.)

The Singapore study makes the same point:

> "The concept of lifelong learning requires textbooks to meet the test of relevance." (S)

This is true of all the books analysed for this study - several examples may serve to demonstrate how it may be achieved.

Writing of U.S. history and civics books, the U.S. team reports:

> "Focusing on social issues was an apparently successful strategy for maintaining students' interest and curiosity through the device of content. Relevance and currency

could be injected through tracing the historical perspective on the problems still being addressed by American society.

For example, one text provided a graphic display of how issues such as dealing with power, transportation, agricultural production and business have been constantly important to the American economy since the early 1600's. Another text included end-of-chapter exercises that deliberately linked problems of the past with the present. This linking was reinforced in the teacher's manual as well as by providing suggestions and stimulation activities. One example asked students to relate issues that are as current today as they were in the past, e.g. third-party political movements or abuse of presidential powers.

Content must also respect the level of sophistication of students. Most texts sought to do this by not avoiding instances showing an America at fault in its handling of important matters at home and abroad. For example, several texts were quite open in asking students to explain contradictions in American policy, actions and political rhetoric and describing points of view.

Taking a look at the human tide of history and government serves to bring a quality of vitality to events and issues that would help students internalize, empathize and remember important themes and events, as well as provide a basis from which to help students develop social science skills." (U.S.)

As well as history, civics and social studies the subject of geography lends itself particularly well to learning based upon reality. The theme 'Cities and People' dealt with in *Geography for the Young School Leaver* ably meets the criteria of relevance to the pupil.

"The pupil is introduced to the complex interrelationships that exist within city regions and the close interdependence of work, services and leisure. There are many urban issues which impinge upon the pupil's life in the community: human congestion, the increasing separation of residential from work areas with the consequent time and expense involved in commuting, conflicts of job renewal and rehousing, the quality of environment and segregation of

people and traffic." (W)

However, a word of warning is contained in the Wales study:

> "There is the temptation for the balance between worthwhileness and interest to correspond to practical utility as one 'goes down' the ability range and to reach a stage where palatable exercises on trivialities become the order of the day." (W)

The arousing of the pupil's interest through relevant themes is also to be found in science textbooks. U.S. biology textbooks

> "consistently incorporate discussion and visuals to help motivate students to further inquiry and exploration through the texts and the supplementary resource materials they recommend. Current concerns with which these textbooks deal include cancer drug research, genetic research, water and air pollution, food additives, and right and left brain studies." (U.S.)

Relevance of content to the pupil's interest and concerns activates the learning process through personal involvement in the subject, which is of paramount importance for stimulating motivation for lifelong learning. Learning in school should be meaningful if it is to continue into adulthood. In this context the U.S. study concludes:

> "Positive student attitudes and student motivation to learn increase as the course of instruction becomes meaningful to students. Learning can be made meaningful by:
>
> - relating it to the student's realm of past experience. Textbooks need to be explicit as to how the course relates to his own experience. For example, an activity on the war of 1812 may ask the student if he has ever been involved in situations of conflict and what the outcomes were.
>
> - relating it to the future goals of the student. Here textbooks need to address situations the student will encounter in the future, including skills he may need in everyday life or in the job market. One way to do

this is to develop a statement that provides an overview of the activity to be accomplished and how doing so relates to future activities outside the school.

- relating it to the interest of the student. The student needs to participate in choosing what he will learn from a variety of suitable and content-appropriate objectives. He should be allowed to make decisions about course objectives and procedures. Helping to direct his own learning affords the student the opportunity to develop his own interests and attitudes while also providing him with a sense of involvement and ownership in the course content." (U.S.)

Textbooks could touch upon, explicitly or in the way of a "hidden curriculum," the question of lifelong education itself. None of the textbooks analysed has done so, not even *It's a Matter of People*, although it devotes a whole chapter to 'Schools ain't what they used to be.' Indeed it could be argued that it might not be out of place to suggest that pupils discuss aspects of lifelong education such as the need for flexibility in a world of constant change and the fact that knowledge is in a permanent state of evolution. They might thus see the need for continued learning.

3. Readable and stimulating language

A considerable amount of experimental research has been conducted into the language used in textbooks:

"Much is known and documented about the critical aspect of matching learner reading level with printed reading level and the spread of readability within course textbooks." (U.S.)

Different readability formulae have been elaborated, based on parameters such as length of words, length and structure of phrases, vocabulary used, etc. (12)

One research study which merits particular attention is 'Assessing the Readability of School Texts,' undertaken in the United Kingdom by Harrison for the Schools Council project entitled *The Effective Use of Reading* (43; pp. 72-107). The findings most relevant to the present study are those concerning the relationship between readability and motivation.

Motivation has a significant influence on the comprehension of texts:

> "Often a child who is not a particularly good reader can surprise us by reading with comprehension as well as enthusiasm a book which seems far too dense in terms of vocabulary and grammatical complexity compared with what he can normally manage. When this happens the reason tends to be related to a high level of motivation. Firm evidence of this phenomenon is found in a study reported by Shnayer (43; p.87)." (13)

But the inverse is also true: a text which is too difficult for the reading ability of the pupils becomes incomprehensible for them. A good textbook and especially one which embodies the principles of lifelong education must be written in language easily comprehensible to the pupil (although the book should of course also serve to develop his reading ability by the inclusion of new words and ideas):

> "Special attention needs to be given to content areas where the pupils' intrinsic motivation is likely to be low, and to those textbooks, worksheets and workbooks which give instructions for a task." (43; p.30)

Here Harrison sounds a note of warning:

> "We should not expect children to work effectively on their own in the library if the reference book we send them to is likely to be harder to read than most other books in the school." (43; p.101)

None of the three national studies undertook a scientific analysis of the language used in the textbooks examined. Rather, they give subjective assessments while stressing the importance of the issue, for

> "language remains the primary tool of communication even in textbooks that make heavy use of visual communication." (U.S.)

A general comment on this subject is expressed in the Singapore study:

> "Wordiness, complexity of sentence structure, general

level of language difficulty can prove as much an obstacle to successful learning as a pedestrian and boring layout. Ideally then, language should be pitched at a suitable level, be interesting through use of image, idiom, etc. and speak directly and clearly. If the pupil cannot cope with the language of the text, then the motivation to read on, to continue learning, to find learning fulfilling cannot occur. Equally, over-simplification, stilted writing in order to reach a pupil of more limited language competence will bore a clever child." (S)

The language used in the textbooks examined is characterised in statements such as:

"The style of the analysed textbooks is direct and informal, using for the most part an everyday almost conversational tone." (U.S.)

"Most of the biology texts use an informal and conversational tone and style ... using language that helps students feel comfortable ... ." (U.S.)

"In many sections (of *It's a Matter of People*) the author has used the spoken word of imaginary characters or has used direct speech incorporated in cartoons. Through this informal approach and the use of 'everyday' language social issues are raised in ways which are comprehensible and meaningful to the pupils. Often in the text the language used is slang, reflecting the spoken language of the teenagers. Here some language purist could well raise objection. But the language and speech patterns normally used by teenagers and adults provide a base on which to build and from which more complex issues involving more sophisticated language can develop. Throughout there is an avoidance of technical terms and jargon which is so often characteristic of the social sciences, and the general impression is that the author has a clear understanding of the content and level of language which is most likely to arouse interest with pupils of 13-15 years." (W)

"A few texts seemed to be very deliberate in the use of colourful and evocative expressions." (U.S.)

"*Certificate Physical Science* adopts a conversational tone that is easy to understand, giving the impression of a

guide or tutor standing at one's shoulder. This would be of great value in encouraging self-directed learning. This book manages to create the impression that it is talking to the pupil and taking him through the steps." (S) (Fig. 5)

The question must be asked at this point whether it might not be counter-productive in the perspective of lifelong learning, to make reading too easy for pupils, the reason being that adults will not always find books which are so considerate of their reading abilities. Should not pupils be trained to cope with more difficult texts and learn how to "decode" them?

4. Stimulation through a variety of learning experiences

"A textbook should have the quality of a good teacher." (W)

A good teacher has a variety of teaching techniques at her disposal. She will work with her pupils in many different ways to stimulate and to maintain curiosity and interest, and will involve them in different kinds of experiences and tasks. Good teachers also know that to be effective, learning has to be an active process. The real involvement of pupils in learning is particularly important in the perspective of lifelong education.

The social studies textbook *It's a Matter of People* provides many examples of how a textbook may stimulate the pupil through a variety of didactic approaches, some of which appear on the following pages:

- comparative information provided through photographs - interesting activities can arise from such an approach (Fig. 6);

- cartoons that ask the pupil to say whether the statement made in the cartoon drawing is true or false (Fig. 7);

- newspaper cuttings that invite critical comments upon the issues discussed and that evaluate the different techniques employed by newspapers (Fig. 8);

- diagrams that help present material which cannot be explained easily in words (Fig 9);

- games and quizzes that check that information has been assimilated and understood and that serve to capture and

19.9 How do we know?

It seems almost unbelievable that diamond and soot are really the same stuff. How do we know that they are?

Let us refresh our memories about what happens when carbon is burnt in oxygen. We shall use a piece of wood charcoal for this.

Experiment 19.7 **Burning charcoal in oxygen**

Obtain a test-tube full of oxygen. Make a loop in a piece of thick wire so that it will be able to grip a piece of wood charcoal. Heat the charcoal until it glows and then put it into the test-tube of gas. What happens?

Put a piece of damp litmus paper in the test-tube. What happens?

Add a few drops of calcium hydroxide solution to the contents of the test-tube and shake it up. What happens?

When charcoal is burnt in oxygen, carbon dioxide is formed. It dissolves in water to form a slightly acidic solution which gives a white precipitate with calcium hydroxide solution.

If we did the same experiment with all the other substances which we suspect to be forms of carbon, and if we got the same result, would that prove that they are all the same?

What happens if you burn bread or sugar in oxygen? If you are not sure, try it and see. Yes, carbon dioxide is formed here too – and yet sugar and bread are certainly not carbon. They *contain* carbon and that is where the carbon dioxide comes from. So would our experiment with the different forms of carbon give us an answer? What different result would we get if we burnt carbon, and then burnt a substance containing carbon?

If you have thought about it enough you will see that when pure carbon is burnt *only* carbon dioxide is formed, but if a substance containing carbon is burnt other things will be produced as well. So, to show that the substances we have said to be forms of carbon are indeed so, we must show that when they are burnt in oxygen they give carbon dioxide *only*. (This was shown earlier in Experiment 7.2 in *Elementary Physical Science*.)

Fig.5. From A.J. Mee and A.C.E. Jarvis. *Certificate Physical Science: Book Two*. London: Heinemann.

retain the interest of the pupil (Fig. 10);

- interview techniques (Fig. 11).

Similar examples of stimulating learning techniques are also found in the other textbooks analysed.

5. Conclusions

Format, content, language and didactic approaches - all contribute towards making textbooks useful tools to stimulate pupils and to strengthen their motivation for lifelong education. A certain number of characteristics have been defined that contribute to reach objectives relative to the concept of lifelong education. These can be summarised thus:

- covers should be bright and inviting in order to create a good first impression;

- the books should be of a reasonable size so as not to deter pupils by being too bulky;

- illustrations should not only be attractive, but should also be informative. Use of colour adds to attractiveness but is not essential;

- the layout should be clearly structured to help pupils find their way through the text, and should avoid having a cluttered look;

- the content should not only be interesting but should above all be relevant to students' needs. Relevance is of paramount importance for making learning meaningful and thus for motivating students to become lifelong learners;

- the language level should correspond to learners' reading ability; language should also be unambiguous and speak directly to pupils;

- the textbook should suggest a variety of learning experiences, which should provide successful learning experiences. Boredom and frustration are the greatest opponents of motivation for lifelong learning.

We shall return in the next chapter to the didactic approach employed in textbooks seeking to develop creativity and self-direction; the notion of success in the learning process is one particular aspect to be borne in mind with regard to different didactic approaches.

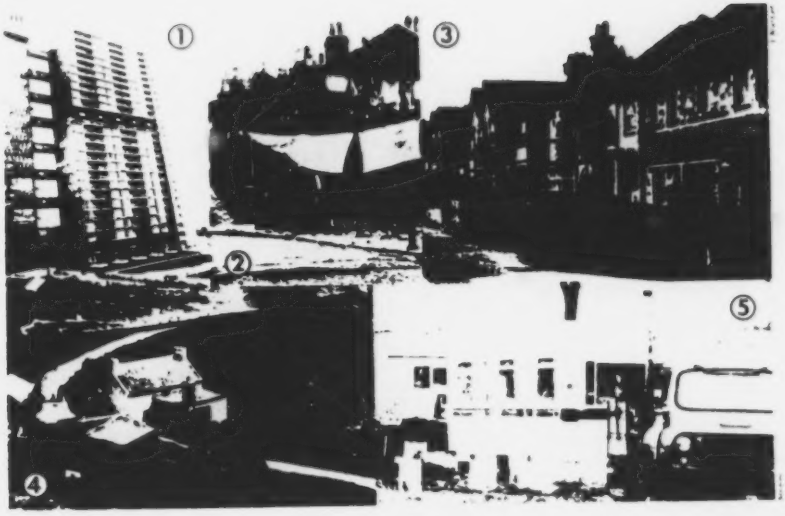


Fig. 6. From Jane L. Thompson. *It's a Matter of People.* London: Hutchinson.

TRUE OR FALSE?
LOOK AT THESE CARTOONS AND FOR EACH ONE SAY WHETHER YOU THINK THE STATEMENT MADE IS TRUE OR FALSE ACCORDING TO THE LAW. (ANSWERS ON PAGE 14)
1
I DON'T HAVE TO SEND HER TO SCHOOL AND THE LAW CAN'T MAKE ME!
TRUE OR FALSE?
2
PARADISE COMPREHENSIVE
WE DON'T HAVE ANY COMPULSORY SUBJECTS AT THIS SCHOOL. THE PUPILS CAN STUDY WHAT THEY LIKE.
TRUE OR FALSE?
3
HONOURS LIST
WELL OF COURSE WE DO GET A LOT OF HOME-WORK AND I REALISE IT CAN TAKE UP A LOT OF TIMOTHY'S SPARE TIME AND ENERGIES. BUT THE LAW SAYS THAT IF WE SET HOMEWORK HE MUST DO IT.
TRUE OR FALSE?

Fig.7. From Jane L. Thompson. *It's a Matter of People.* London: Hutchinson

who took humming lessons to catch the votes

THE MAKING OF MAGGIE

'Mrs Thatcher is being packaged like a commodity'

by JOE HAINES

TOMORROW: MARX, MOVIES AND VICTORIAN VALUES

Fig.8. From Jane L. Thompson. *It's a Matter of People.* London: Hutchinson

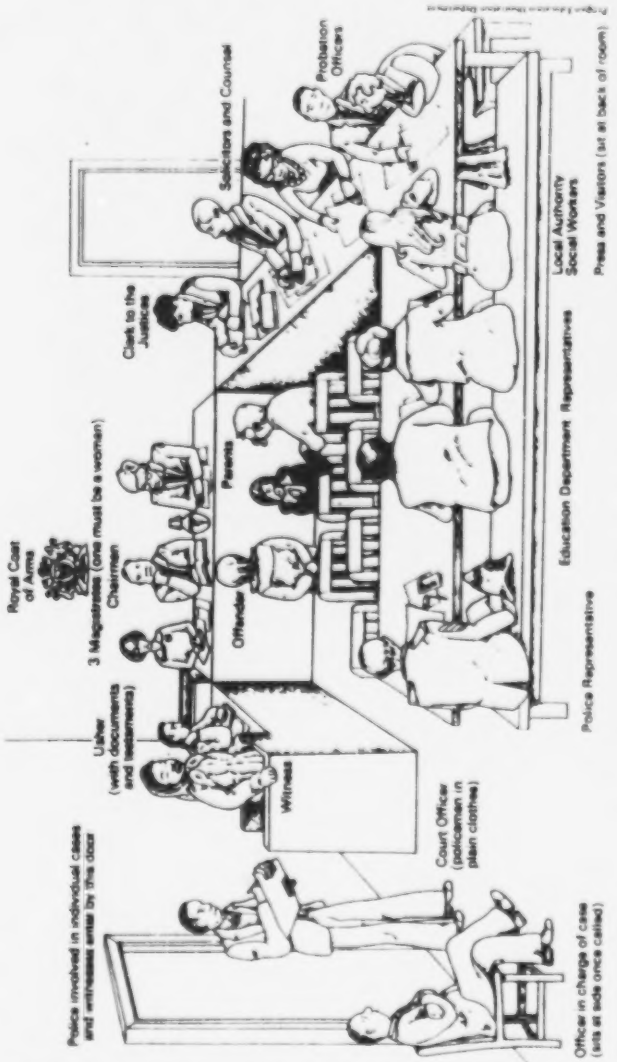

Police involved in individual cases and witnesses enter by this door
Usher (with documents and testaments)
Royal Coat of Arms
3 Magistrates (one must be a woman) Chairman
Clerk to the Justices
Solicitors and Counsel
Probation Officers
Witness
Court Officer (policeman in plain clothes)
Offender
Parents
Police Representative
Education Department Representatives
Local Authority Social Workers
Press and Visitors (sit at back of room)
Officer in charge of case (sits at side once called)

Fig.9. From Jane L. Thompson. *It's a Matter of People.* London: Hutchinson

1 Can you name the ten national daily papers?
Here are some clues to help you

1 E _ _ _ _ _ S — A fast train

2 _ _ I _ — Another word for to 'post'

3 M _ _ _ O _ — Needs looking into!

4 T _ _ E G _ _ _ H — Up the pole?

5 T _ E _ _ _ _ S — If you want to know, look at your watch!

6 F I N _ _ _ _ _ L T _ _ _ S — The same as number 5, but with cash in mind

7 G _ A _ _ _ A _ — Looks after orphans?

8 _ U _ — Shines all day

9 M _ _ _ _ _ G S _ _ _ — Shines early in the morning

10 _ _ _ _ Y _ _ A _ — Britain's newest newspaper

2 What are the names of the local and regional papers in your area? Look through them and see if you can find out who owns them. Do they belong to any of the big four companies named above?

3 Carry out a survey in your class to find out a) which papers and b) which magazines are read in each family. Then draw up a table to show which ones are the most popular.

Here you can see about how many copies of each of the nine main daily papers are sold every day. These are known as the *circulation* figures.

Paper 1	2,063,428	Paper 5	376,932	Paper 8	4,160,064
Paper 2	1,828,123	Paper 6	214,356	Paper 9	29,235
Paper 3	3,282,972	Paper 7	466,186	Paper 10	1,375,276
Paper 4	1,243,362				

4 Write out a list of the newspapers, starting with the paper which has the largest circulation and working down. How does the order compare with the results of your class survey?

Fig.10. From Jane L. Thompson. *It's a Matter of People.* London: Hutchinson

Why do women work?

First draw up your own chart like this one. Then ask up to 20 working women why they go out to work and in each case put a tick on the chart next to their main reason.

REASON	TICK	TOTAL
They have no husband and/or need money to support themselves or their children		
Their families can't manage on only the husband's pay		
They want to earn extra 'pin money' for luxuries		
They have no children or their children are grown up and they get bored at home all day		
They think it's important for a woman to have a job she likes as well as to be a mother		
Other reasons		
TOTAL NUMBER OF WOMEN ASKED		

1 Add up the total of ticks against each reason and compare your findings with other people in the class.
2 Which two reasons are given most often by women for going out to work?

Fig.11. From Jane L. Thompson. *It's a Matter of People.* London: Hutchinson

CHAPTER 3

Creativity and Self-direction

In Part One of this study one function of the school in the perspective of lifelong education was identified as "preparing the individual for a life in which he will be able to direct his own process of lifelong education." Closely related to this function was that of "encouraging the capacities for self-education and self-evaluation."

For pupils to become lifelong learners they should develop certain specific attitudes and behaviours and, in addition to the basic skills traditionally transmitted by school such as reading, writing, computing, etc. they should also develop certain other specific abilities and skills. Though by no means exhaustive, the attitudes, behaviours, abilities and skills itemised below are felt to be of particular importance within the perspective of lifelong education:

Attitudes and behaviours

exercising autonomy, independence and self-reliance

being active and taking initiative

having confidence in own learning abilities

being creative

being critical

being communicative and cooperative

showing interest and inquisitiveness

Abilities and skills

identifying learning needs and defining learning goals

assessing own learning process

analysing and solving problems

gathering information from a variety of sources

investigating, discovering

cooperating with others

decision making

In his book entitled *Self-directed Learning*, Knowles identifies competencies essential to self-directed learning which are of particular relevance here. Among these are:

- a concept of self as being a non-dependent and self-directing person;
- the ability to relate to peers collaboratively, to see them as resources for diagnosing needs, planning learning and learning; to give help to them and receive help from them;
- the ability to diagnose one's own learning needs realistically, with help from teachers and peers;
- the ability to translate learning needs into learning objectives in a form that makes it possible for their accomplishment to be assumed;
- the ability to relate to teachers as facilitators, helpers or consultants, and to take the initiative in making use of their resources;
- the ability to identify human and material resources appropriate to different kinds of learning objectives;
- the ability to select effective strategies for making use of learning resources and to perform these strategies skilfully and with initiative;

- the ability to collect and validate evidence of the accomplishment of various kinds of learning objectives. (38; p.61)

How can textbooks contribute to the development in the pupil of the attitudes, behaviour, abilities and skills he will need as an adult in order to be able to manage his own process of lifelong learning? How can they help the young person "learn to learn"? How may they foster in the pupil the qualities necessary for becoming a self-directed learner? How can they stimulate creativity? In the previous chapter format, presentation, language and methodological aspects of textbooks were seen to play an important role in stimulating and motivating the pupil. Of these characteristics clearly only the last-mentioned contributes in any way to the production of creativity, self-direction and self-assessment. In the present chapter a line is drawn (somewhat artificially) between textbook content and methodological approach in order to present more clearly their contribution to these aspects of lifelong learning.

1. Contents of textbooks promoting creativity and self-direction

To become lifelong learners pupils should be creative and active in their learning rather than passive recipients of page upon page of facts to memorise. In all the textbooks analysed by the national teams content is presented in an innovative way that stimulates the pupil's active involvement in the learning process. Methodological approaches are emphasised and not simply the transmission of factual knowledge; the texts stimulate discussion and active pupil participation.

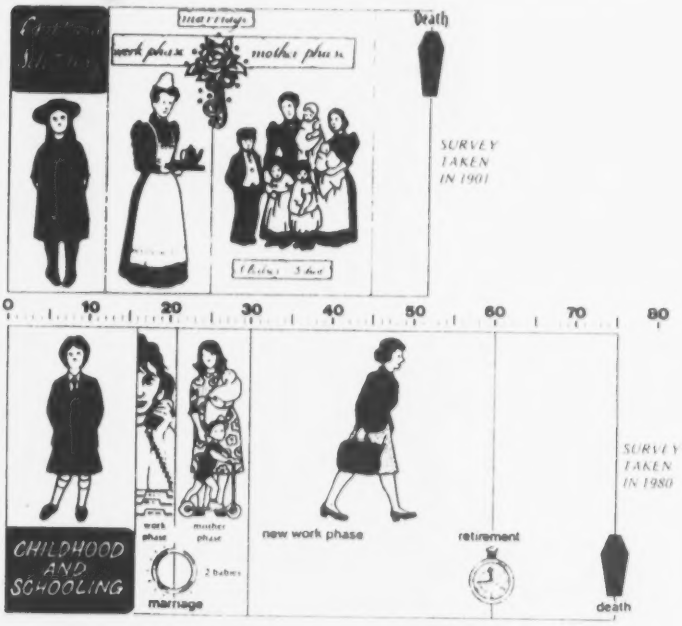
The textbooks chosen for the Wales study probably go farthest in this direction. *It's a Matter of People*, for instance, transmits facts by presenting them in a continuous dialogue with the pupil. The pupil is therefore constantly provoked to react, to think, to discuss, to reason. Fig. 12 provides a good illustration of this approach.

Writing about the three titles of the *Nelson Humanities Scheme* the Wales team states:

"Humanities teaching by its very nature is often non-instructional in so far as it is less an attempt at imparing information as such than an attempt at teaching ways

Now you know some of the reasons women give for going out to work. But something else is important too – the changes that have taken place in women's lives during the last 70 years or so.

Look at this chart carefully and you will see how different phases have become more, or less, important.



When did most girls leave school in 1901 and in 1980?
When did most women marry in 1901 and in 1980?
What was the average life-span of women in 1901 and in 1980?
How many children did most women have in 1901 and in 1980? How many usually survived in each case?
How many years did the average woman spend looking after children in 1901 and in 1980?
Suggest as many reasons as you can why women seem to have fewer children these days.
What's the main change that has taken place in the work phase of women's lives in the last 80 years?

8 Does the 'new work phase' mean that women today stop being housewives and mothers during this part of their lives? Explain your answer fully.
9 Make a list of the jobs your mother does in the home each week. How many hours per week on average does she spend doing housework?
10 Some people think housework isn't real work like having a job outside the home. What arguments would you use to agree or disagree with this point of view?
11 Make a list of any household goods and gadgets which have helped to make women's work at home easier and quicker over the last 80 years.
12 Draw or describe an invention of your own which you think would help to make housework easier. Try to be as imaginative as you can.

Fig 12. From Jane L. Thompson. *It's a Matter of People.* London: Hutchinson

in which knowledge may be applied. This feature is evident in the English textbook, where extracts are included not so much to inform as to stimulate the pupils to think for themselves about such interesting issues as the quality of heroism, the necessity for rules, or whether age is a barrier between people. The geography and history textbooks are of necessity more factual. Yet even here one feels that the approach is life-centred rather than subject-centred.

The *Nelson Humanities Scheme* raises also controversial issues such as racial prejudice, colour prejudice, religious and sectarian barriers, rural depopulation, overpopulation and disease. The English textbook seems particularly successful in this area in so far as it encourages the pupil to identify himself with characters who have a different perspective on the world and its problems. Literature is unique in having this capacity to bring the reader into contact with the thoughts, experiences and feelings of people who exist outside and beyond his daily awareness. It is often said that we do not really know our own viewpoint on an issue, until we have encountered other peoples' views. Thus *Place to Place*, for example, in introducing the pupil to Obi, who returned to his native Nigeria after studying in Britain for four years, or to Peter Abrahams, who was born in the coloured community in South Africa, helps him develop his ability to think critically and in a more informed way about world problems, both familiar and remote, both past and present. The pupil will know a little more surely where he stands on such issues as the textbook raises, after reading about such people. Critical thinking implies, above all, that the pupil has weighed up evidence before coming to any conclusion. The literature extracts in particular provide him with this evidence." (W)

The series *Science at Work*, also analysed by the Wales team, offers examples of textbooks teaching pupils by practical experiences and thus engaging them in an active learning process:

"*Science at Work* sets up a series of practical exercises. There are clear-cut practical tasks to be performed. In *Cosmetics* there is an experiment in the manufacture of after-shave lotion (Fig. 13), in *Electronics* pupils are shown how to construct an automatic car parking light, and

2 Making cosmetics

After shave

Apparatus

★ 30 cm³ industrial spirit ★ 3.5 cm³ glycerine ★ measuring cylinder
★ funnel ★ bottle with stopper ★ 2 clamp stands with clamps ★ stop clock
★ 2 thermometers with bungs ★ 2 watch glasses ★ 2 pieces of cotton
★ 2 rubber bands ★ tap water ★ 3 labels

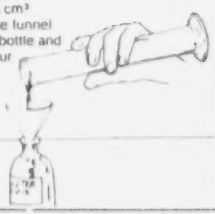
You are going to make after shave and find out what it does.

Keep industrial spirit away from any flame.

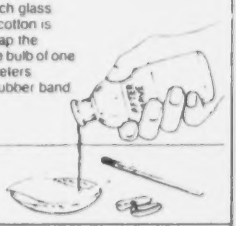
Q1 Copy this table.

Thermometer bulb covered with:-	Temperature of bulb in °C after:-						
	0 mins	5	10	15	20	25	30
Cotton + aftershave							
cotton + water							

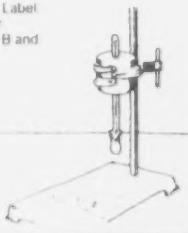
A Put a funnel into a bottle and pour in 30 cm³ industrial spirit and 3.5 cm³ glycerine. Add 15 cm³ water. Remove the funnel. Put the lid on the bottle and shake it. Label your after shave.



B Put some of your after shave onto some cotton on a watch glass. Make sure the cotton is quite damp. Wrap the cotton round the bulb of one of the thermometers. Secure with a rubber band.



C Fasten the thermometer in one of the clamps. Label the clamp stand **after shave**. Repeat steps B and C with water.



D Read the temperature on each thermometer at the start. Then read them every 5 minutes for half an hour. Record the readings in your table.

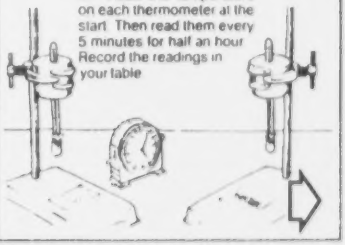


Fig.13. From John Taylor (ed.) *Science at Work Series: Cosmetics*. Harlow: Longman (Addison-Wesley)

in *Photography* there is a section on enlarging prints. Thus there is a continuous task of problem-solving skills.

> For self-learning there have to be processes whereby the learner can be taken along without any help or outside directions. There must be a clearly designed path. A progression must be apparent to the person. If the self-instruction is not making apparent progress, then frustration sets in. When no accomplishment arises, then similar feelings are felt. *Science At Work*, with a series of exercises which are self-contained, satisfies most of the above-mentioned criteria. Success is immediately apparent.
>
> Science is being taught in a utilitarian role, i.e. its function is used as the teaching kernel. Around particular functions the authors build up a body of knowledge - science is thus being inculcated as a result of its application. At no time does the whole become bogged down with scientific terms. There are no strict definitions. In older textbooks it would have been thought impossible to teach any form of electricity without a sound knowledge of Ohm's law. This would have been considered essential and fundamental by the traditionalist. However, in *Electronics* the term Ohm's law is never mentioned. The book succeeds without using this idea." (W)

It is probably worth restating at this point, however, that the series *Science at Work* is designed for less able 14-16 year old pupils.

Certificate Physical Science, though more sophisticated, proceeds in a very similar way. The book offers an almost equal balance of text and experiments. In some chapters there are as many as 25 experiments. Many of these are relatively simple to do, and the steps are clearly laid out. The tasks or objectives for each experiment are straightforward and worthwhile and frequently end with questions (Fig. 14).

> "These sorts of questions are important as they have the effect of directing the attention of the pupil to the processes the experiment was designed to reveal and to involve himself in the answer reached. This self-instruction element should keep the pupil motivated to proceed further not only because it involves him but also because it proceeds in a step-by-step manner building up understanding and deepening knowledge of science concepts

Experiment 20.11 **Separating crude oil**

Set up the apparatus shown in Figure 20.12. Put some crude oil into the distilling tube together with a little sand or broken porous pot. The purpose of this is to stop the liquid from bumping when it is boiled.

Warm the distilling tube carefully using a small flame. Notice the reading on the thermometer. At about 120 °C you will be able to collect a few cm^3 of liquid. Remove the receiving tube and replace it with a new one, and collect the distillate that comes over up to 160 °C. Repeat the process at 40 °C intervals until the temperature reaches 320 °C.

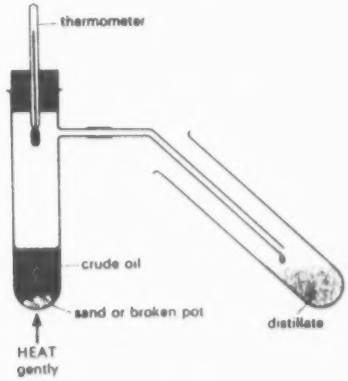


Figure 20.12

You have separated the crude oil into a number of different portions according to their boiling points. How do they differ? Smell each one. Can you detect any difference? Do they all flow as easily as each other, or are some more 'sticky' than others?

What does the small amount of liquid left in the distilling tube look like?

Fig. 14. From A.J. Mee and A.C.E. Jarvis. *Certificate Physical Science: Book Two*. London: Heinemann.

and processes." (S)

In most textbooks, exercises and questions are kept to the end of the chapter or, worse, to the end of the book. This implies that the validity of the content of the chapter is beyond question and must be accepted and assimilated by the pupil. This is not true of the textbooks mentioned above, nor of *Human Geography*, where there is a dialogue between the book and the pupil. Questions arise within the text, and pupils are incited to 'compare,' 'notice' and 'suggest' throughout work on the information presented.

The Singapore study concludes:

> "This active guided way of dealing with facts and concepts will promote creativity and foster a sense of self-direction: The pupil is encouraged to take his learning into his own hands." (S)

Content and presentation of the biology textbooks examined by the U.S. team - intended for 15-17 year old students - are very sophisticated and show features that are highly relevant here. All have chosen to organise chapters and units around central concepts and themes, e.g. The Continuity of Life as a unit and Principles of Heredity as a chapter within this unit, and then to develop those ideas through breaking them into component parts.

> "Most of the textbooks and the companion student materials present a basic key concept at the beginning of each chapter or in the first chapter of a cluster of chapters forming a unit of work. For example a unit stressing the unity of life focuses on the cell as the basic structure common to all life and develops in succeeding chapters the understanding of ways to approach science and science inquiry through learning about cell functioning and related topics." (U.S.)

In one of the books its objectives are set out for each step:

> "This clear identification of the learning purpose models for the students an essential strategy they will call into use as lifelong learners - the setting of learning goals for themselves." (U.S.)

In another book the text is interspersed with questions and suggestions for inquiry. Thus pupils feel they are participating in a process of research. The preface and foreword of one of these books states the open and undogmatic approach pursued:

> "One of the purposes of this text is to provide background information. Another is to induce a critical and inquiring attitude until adequate data are obtained. Facts are important. But more important will be the development of the questioning attitude necessary to ensure the proper application of the facts concerned. As you read the text, keep an open and inquiring mind. Ask questions, make sure you understand. Consider alternative courses of action ... What you read is probably not as important as how you read. Try to be selective - spending more time on topics that you find interesting or challenging. Develop a certain degree of healthy scepticism. Ask questions like 'How can I know that is true?,' or 'Is there a better interpretation than the one given here?' Ask yourself also how knowledge is generated. Perhaps more important is finding out how you can apply the information you read to your real-life situation.
>
> This book has been carefully designed to provide you with some of the basic ideas in biology. But biology, like any other area of human endeavour, is constantly changing. What is assumed to be true today may be proved false tomorrow. And the real science of biology is not contained in textbooks. It is in the minds of biologists around the world who work each day to extract some meaning from their observations of the natural world." (*Biological Science*, pp. v-vi)

Such an approach evidently avoids simple transmission of factual knowledge and aims at involving pupils in creative and critical thinking leading to autonomous learning:

> "These textbooks have also chosen to introduce early in their presentations important background information on the history and development of science and scientific method. The discussions of scientific method appear to be of great potential value in developing the kinds of skills students need in order to become successful as lifelong learners. For example, in one text quite a thorough exposition of the scientific method makes it possible for

students to approach, define and solve a problem in an organised manner. The delineation of the scientific method is augmented by an actual historical example of its use by early scientists. A second textbook contrasts the early method with the present-day method. By providing the step-by-step description, these textbooks seem to encourage their young users to adopt an attitude of independent inquiry and discovery as their own. This is reinforced in the laboratory manuals as students have the opportunity to apply the method through actually conducting experiments. The notations in teachers' manuals suggest that teachers help students extend these in-school experiences with supplementary data from outside sources.

In most biology textbooks examined there is some flexibility in the sequence in which teachers can present the content units to students once the groundwork for further investigation through study and laboratory work has been established. As students learn and practice skills in simple experiments they become ready for more sophisticated investigations that offer them (and their teachers) opportunities to explore topics of particular and timely interest to class members. For example, having covered the care and use of the microscope, students could increase their skills and begin to deal with issues of water pollution and its causes as a current topic by collecting water samples from sources around their community and studying these samples with the microscope. Teachers' manuals or marginal notes in teachers' editions incorporate such suggestions." (U.S.)

End-of-chapter sections provide summaries and review questions and problems, ideas for independent study and, of particular importance in our context, bibliographies. For independent learning the use of books and other reference material is of paramount importance - and how to use books has to be learned.

2. Activities promoting creativity and self-direction

The different textbooks analysed in the framework of this study suggest a rich variety of activities aimed at shaping attitudes and developing the skills of creative and self-directed learners; they are thus far removed from the traditional method of testing whether the information

contained in the book has been memorised. It has already been noted that a good textbook is like a good teacher, and good teachers are creative teachers:

> "Teachers who use strategies in the classroom that spark and hold the interest of students have modelled the creativity and self-direction vital to lifelong education through the teaching of subject matter. Creative teaching encourages and invites the learner to personalise the subject." (U.S.)

The U.S. study brought forth a number of examples of creative strategies used in textbooks, teachers' manuals and pupil activity guides to incite pupils to approach the subject imaginatively and to develop their own creativity and independence as learners in the process. Activities similar to those mentioned here are also to be found in the Singapore and Wales studies:

> "Civics and history texts alike provided a range of activities that demonstrated creative approaches. For example, in dealing with the concept of global interdependence, students were encouraged to identify and seek out as many different manifestations of the interdependence between their own state and other nations. The teachers' manuals often provided a few examples teachers could use to stimulate students' thinking. Brainstorming, either with the whole class or in small groups, was another technique textbooks, manuals and guides frequently used to encourage creative thinking in students.
>
> Another strategy for developing both independent learning and creative thinking was stimulation and games. Several textbooks incorporated activities asking students to imagine situations, to design scenarios and to role-play circumstances and mock events significantly different from those experienced in their daily lives. Through such activities students were actively engaged in choosing a role, a topic, or an issue and finding new sources of information and new ways to present the information to classmates. These might include making films and tape-recording of interviews, or gathering old photographs or taking new ones to supplement oral presentations to the class.

One teacher's guide asked students to become futurists by making predictions about how their community would deal with an unresolved issue. Students were urged to conduct an independent community field study to substantiate the predictions they made.

Exercises often provided in the end-of-chapter sections offered additional opportunities for creative written responses to questions. Other end-of-chapter exercises encouraged students to develop artistic abilities by drawing, charting, mapping or building a model. Producing a dramatization of a historical event provided a chance for students to be both creative and resourceful in demonstrating what they had learned about the event.

Many suggestions for independent learning projects were encountered in the textbooks examined by the team and these also provided opportunities for the kind of creativity and self-direction essential to effective lifelong learning. In addition, these projects allowed for a great range of personal expression. For example, students could use the textbooks' content in:

- making bulletin boards;
- drawing cartoons;
- illustrating political events;
- watching a movie or a TV programme;
- writing lyrics for a song or composing the music for it;
- designing posters and advertisements;
- researching historical landmarks;
- developing proposals;
- writing movie scripts;
- conducting radio talk shows;
- identifying resource persons in the community and inviting them to speak in the classroom.

One activity book took a very deliberate approach to encouraging the development of self-direction in learning. The strategy was to take the student step by step through the scientific method of observation, experimentation and problem-solving. As a skill was introduced or practised, it was identified and pointed out to the student. No doubt was left as to its purpose relative to lifelong education either. In the Introduction, students are told that not only will these skills be useful in completing schoolwork, but they will be helpful throughout life. Frequently, at the end of an activity, students were asked what they had learned through the activities that could be applied to other courses or areas of their lives.

The skills of self-directed learning - comprehension, gathering data, sequencing, classifying, inference, analysis, hypothesising, hypothesis testing, application, evaluation and communication - were presented to some extent in all textbooks, teachers' manuals and students' activity guides, but few programmes overtly, explicitly addressed and incorporated all of them clearly enough to ensure that students would 'get the message' without teachers' intervention." (U.S.)

From the wide range of proposed activities to enhance behaviour and skills required for self-directed learning summarised above, several illustrative examples may be quoted. All are taken from the U.S. study:

To train information seeking:

- The Indians, Spanish, French, Dutch and English Colonists left their traces in place names and other words. Using an atlas and a dictionary to assist you, make a collection of place names and words to show these origins.

- Assume that you were asked to write a brief report on someone who played an important role in the colonisation of the Americas. Choose one particular individual and then find out how much information about that person is available in your local library. List the material you found and then prepare a concise outline that you would use if asked to write such a report.

To develop and use problem-solving skills:

- Why is a unicellular organism more versatile than a multicellular one? Speculate on the effect of a salt water environment on a fresh water cell and vice versa.

To initiate a learning activity (focused on reading and writing skills):

- Prepare an advertisement that you think might have been used to attract people to settle in one of the 13 original colonies. Be sure to identify the colony you have chosen and prepare your advertisement so that it would appeal to the type of people who actually settled in the colony.

To promote independent learning:

- Do research to find out more about the role of women in American society in the late 1700's. Why do you think few women tried to obtain political rights during this period? What does this tell you about American values in the late 1700's?

To utilise resources in the community for learning; to promote cooperation with others:

- As a class project, find out when your town was settled and who settled it. Why was the site chosen? Are there any buildings dating back to this period? What can you learn from inspecting old houses or artifacts you are interested in?

To develop analytical skills and critical thinking:

- Use the dictionary to define the following words: philanthropy, autonomy, covenant. Then relate each of these words to a person or event described in this chapter.

In one of the American textbooks on civics - *American Government: Comparing Political Experiences* - a whole chapter discusses 'The Skill of Gathering Evidence.' Here, the pupil is taken through the various stages of gathering evidence: identifying a topic, asking questions, choosing sources of information, evaluating information and recording information. It is worth stressing at this point the value of teaching children to use encyclopaedias, atlases and other sources of information such as books, periodicals, newspapers, radio and

television. It is essential that young people learn that books are indispensable learning tools and how to deal with them. It is also important that they learn how to consult a library. Unfortunately, not every school and not every village - especially in developing countries - has a library at its disposal; where there is one, however, pupils must become acquainted with it. To seek and to assimilate information is a fundamental dimension of learning. In Part One it was noted how important it is for a lifelong learning process to know how and where to find pertinent information and to be able to use different sources of information. In the perspective of lifelong education it is more important to know where to find a specific piece of information than to memorise facts and data. To stimulate pupils through appropriate bibliographies to conduct independent investigations becomes therefore a main goal of "learning to learn." In the perspective of lifelong education it would appear unthinkable to produce textbooks having no indication as to main sources of further information in the subject area concerned, i.e. to produce textbooks without annotated bibliographies.

Among the skills that are often neglected in school - though they are important in the perspective of lifelong education - are the oral skills, e.g. the skills required to argue. Some of the textbooks analysed do provide for this; in *It's a Matter of People*, for instance, the pupil is incited throughout the book to answer questions such as "What's your opinion?", "Discuss this with the rest of the pupils in your class", "Explain why you agree or disagree". The pupil is required to articulate his views, to listen to and to appreciate the opinions of others and to synthesise and evaluate what he has heard. Opportunities are also introduced for the pupil to talk to the whole class on selected subjects. Moreover, activities like role-playing, stimulation, etc., also serve to develop the oral skills of the pupil.

Group learning and team work are also vehicles for the development of oral skills. Indeed, these organisational modes are essential in a learning society where "inter-learning" is an essential component, as stated by Dave and others:

> "A major goal of lifelong education is enhancement of the ability to learn with and through other people, whether it be in school or in the family, at work or in recreational groups, clubs and societies. This is the process of 'inter-learning.' This process of sharing knowledge and

experience is of great importance for establishing a learning society rather than an elitist society of learned persons." (21; p.368)

3. Self-assessment

An important dimension of self-directed learning is the ability of the autonomous learner to evaluate whether the goals which he had set himself have in fact been attained, and therefore whether the learning process has been successful. New goals can reasonably be set only after such assessment has taken place. In the traditional school system, evaluation was a matter for the teacher only - she examined and verified whether the pupil had assimmilated what he had been taught. In many cases this amounted to a check on the pupil's ability to memorise facts.

The problem of evaluating the pupil's abilities and performances is a very complex one, and is the subject of a great deal of search and discussion. We shall limit ourselves to one simple observation followed by a pragmatic question: Self-assessment is a skill that has to be learned. How, then, can textbooks contribute to the development of abilities for self-assessment?

In some of the textbooks analysed for this study, assessment techniques are largely conventional and intended solely to test the pupil's understanding of the factual knowledge presented in the text. A number of other assessment techniques were identified, however, although the impression is gained that much more emphasis should be given to this aspect of textbooks.

In science textbooks experiments for the purpose of testing appear to be a reasonably satisfactory method of self-assessment, in so far as they incite the pupil to apply to new questions principles that have previously been learned. Thus testing becomes meaningful. In *Science at Work*, there is, as has already been noted above, a continuous testing of problem-solving skills. And for every successful task completed there is an immediate reward, such as an enlarged photograph in the case of a photography experiment.

In the biology textbooks laboratory activities also offer a rich source for self-assessment as

> "they provide immediate feedback to students and at the same time opportunities to correct misunderstandings and improve skills. As students conduct experiments they are required to answer the questions in the laboratory workbooks; thus as each step is completed, learning and observations are assessed and achievement may be noted by the student and by the teacher." (U.S.)

Many of the examples quoted in this chapter as activities to promote self-directed learning may lead the pupil to self-assessment. It might be concluded from this that in order to further self-assessment the pupil should not only be asked factual questions related to the content of the textbooks, but should be engaged in meaningful activities, the product of which leads him semi-automatically to assess whether he has attained the goals set for him.

4. Conclusions

The textbooks analysed for the present study have been shown to be activity-oriented rather than purely fact-oriented, as is the case with traditional textbooks. The pupil is engaged in real learning processes and is incited to think rather than simply to remember pages of facts. In some of the books a genuine dialogue is opened with the pupil. Often the pupil is introduced to science subjects through experiments, thus learning by investigation and discovery, instead of memorising given knowledge. He is also invited to ask questions. Scientific and research methods are explained, thereby stimulating critical thinking. In this way independence and self-direction are promoted.

Most of the textbooks analysed suggest a wide range of activities that require a high degree of initiative from the pupils, and that serve to develop behaviours and skills. Sometimes, other sources of information are suggested by these activities: several textbooks contain bibliographies, which, as previously mentioned, would appear to be indispensable in the perspective of lifelong education. The training of oral skills is emphasised and teamwork is also encouraged, although it is felt that inter-learning should be stressed more heavily.

Various self-assessment techniques were able to be identified in the textbooks analysed, However, more should and could be done in textbooks to develop techniques which promote self-assessment.

CHAPTER 4

Transfer

By transfer is meant the encouragement given to the pupil to proceed beyond his immediate environment - classroom and school - with a view to bringing about an open attitude to life and to applying learning to practical life experience.

In traditional education systems school is divorced from life, the real world, and from work. Similarly learning is considered to belong to a specific period of life. 'Youth learn, whereas adults go to work.'

In the perspective of lifelong education, however, school can no longer be seen as the only provider of learning: it is but one element in a whole network of education facilities. It is therefore necessary that pupils come to experience that learning can take place everywhere: in the family, in cultural institutions, in factories, etc. They must learn that learning and schooling are not synonymous and that different learning facilities are often complementary.

Schooling cannot be a closed process. If education and learning are to continue after school, then the school system and teaching have to be open to life and open to the real world. There must be a horizontal integration between school and its cultural, social and economic environment. It is needless to stress that teaching and learning becomes much more pertinent and motivating when it is effectively related to the environment in which pupils live and when it deals with questions they are confronted with through the mass media and through contact with their elders.

In this context the link between study and practical work deserves particular attention. Interactions between work and learning will characterise adult life, and pupils should become aware of these interactions, thus experiencing that

learning is meaningful and an integral part of life.

1. Presenting the real world through illustrations

The three national teams were not given a specific brief to examine what kind of world is presented to pupils through the illustrations in the textbooks examined. However, it was seen that representations of everyday life, of people at work (where you can recognise what they are doing), of different professions, of factories, of schools in other regions of the world, of starving children in developing countries, of the misery of old people etc. were very few in number.

In *It's a Matter of People* the entire book deals with social questions, e.g. 'Women at Work,' or helping aged people, and with problems of actuality, such as world solidarity. Similarly, in *Geography for the Young School Leaver* (the theme of the book selected being 'Cities and People') problems of various cities - traffic and communication problems, significant differences in residential areas, etc. - are shown in a realistic way. In *Human Geography* there are also some photographs of factories or of traffic problems in large Asian cities. Pictures of working people, however, are often too small to offer a clear view of what the work is or the setting in which it is done; often the captions are too general. Geography is a subject which obviously fosters transfer, yet so many geography textbooks show in their illustrations the world as tourists might see it: attractive landscapes, views of towns and monuments, folklore and so on. The reality of a country is often quite different from this, however. Geography textbooks should show the life and environment of ordinary people: their homes, places of work, schools, daily routines, even their forms of dress.

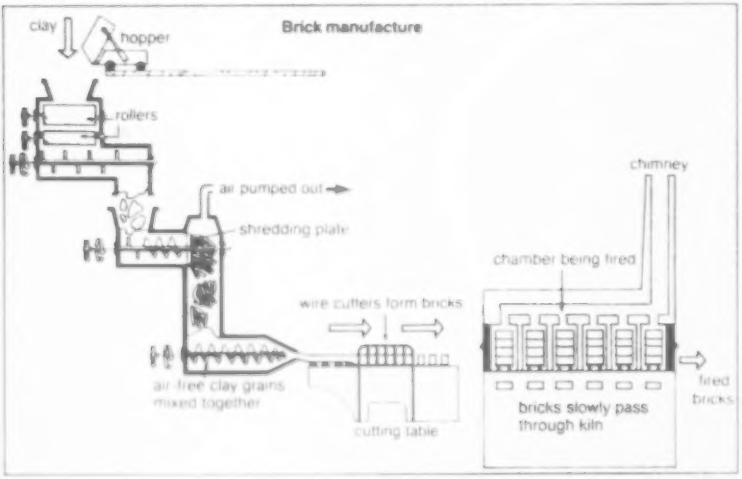
Some of the booklets in the *Science at Work* series show in a remarkable way real working procedures (Fig. 15). (It is significant that the word "work" appears in the title of the series.) *Certificate Physical Science* also makes efforts to link the study of physics to everyday life and especially to industrial production, by showing photographs and diagrams of blast-furnaces or gas-works. Biology textbooks, by their very nature, are perhaps less able to enhance transfer. However, one of the U.S. biology books presents pictures of representatives of different professions related to biology and in some cases careers in this field are discussed.

Building homes

Information: Materials used for building homes

Bricks

To make bricks, raw clay is dug out of the ground and crushed into grains. Air is removed from the grains. They are shaped into bricks and these are heated in a **kiln.** This **firing** causes changes to take place in the clay; the temperature and time of firing can affect the appearance of the bricks.



Mortar

Bricks are joined together with mortar.

Mortar is made from sand, an **inactive** material (that does nothing), cement (a binder) and water.

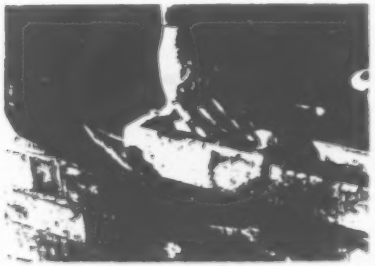


Fig.15. From John Taylor (ed.) *Science at Work Series: Building Science*. Harlow: Longman (Addison-Wesley)

Finally, a course in civics naturally offers many occasions to deal with and illustrate questions of actuality and generally relates to the real world of politics, economy, trade union movements, etc.

2. Discussing the outside world in textbooks

As already noted, *It's a Matter of People* is entirely devoted to real-life problems. The Wales study describes how this textbook encourages the pupil to proceed beyond his immediate environment.

> "The classroom is used at the first step in the learning process in this book. In all the sections pupils are encouraged to move beyond their school and classroom into family, neighbourhood and the wider society to find out and develop the ideas which they have acquired. Educational experiences are closely related to life, and children are encouraged to move beyond their immediate surroundings, both socially and geographically.
>
> The topics which have been chosen lend themselves to such an approach, as does the whole area of social studies in the secondary school curriculum. The author is at pains to offer pupils opportunities to explore, to discuss, to apply knowledge in a context beyond the narrow limits of the classroom. This concern with how to involve pupils permeates all sections. Activities are suggested which are both theoretical and practical, and which aim to widen the pupils' perspectives.
>
> The following illustrations (Figs. 16 and 17) show how the pupil is encouraged to use the family as a learning resource[14], as well as the links with the world outside. Skills are fostered - tape recording, interviewing and also listening skills - that are often neglected within the curriculum. Children are shown how valuable time and experience can be by gaining insights into the past through talking to grandparents and parents about their views, ideas and attitudes.
>
> Pupils are also encouraged to find out for themselves by investigating the neighbourhood in which they live. They are encouraged to map out the area, talk to residents about their views on living on estates and supplement their findings by using the facilities of the local

I'M DOING A PROJECT FOR SOCIAL STUDIES ON HOW EDUCATION HAS CHANGED SINCE YOU AND MUM WERE AT SCHOOL. CAN I ASK YOU A FEW QUESTIONS AND RECORD YOUR ANSWERS ON THIS TAPE?
NOT NOW, LOVE, I HAVEN'T TIME FOR ALL THAT. YOUR MUM WILL BE IN FROM WORK SOON AND YOU SHOULD BE HELPING HER BY GETTING THE TABLE SET.

Interviewing parents isn't always easy. Especially when they're busy doing other things.

Fig.16. From Jane L. Thompson. *It's a Matter of People.* London: Hutchinson

So what counts is to do with money, youthfulness, having a job, being powerful and being 'with it'. But old people have other things to offer. Two of the most important ones are time and experience. Time to listen and talk to you in a busy and hectic world. And memories that go back for years over a lifetime of experience.

Talk to your grandmother or grandfather or an elderly person you know well and ask them .....

What they think life has taught them.

What they think are the main differences between society today and when they were your age. Do they think it is better or worse today?

Fig. 17. From Jane L. Thompson. *It's a Matter of People.* London: Hutchinson

library, town hall etc. Sometimes such activities would take place during school time with the teacher briefing the class first and groups of children undertaking different activities. Alternatively, however, the activities would allow the pupils to carry them out as a starting point for an individual project (Fig. 18).

The world of work is also given attention. Teenagers, particularly those who will not enter further or higher education have their sights clearly upon receiving a weekly wage packet, and freedom to dress and spend money and time as they wish. The sections of the book which deal with 'The Trouble with Teenagers' and 'Women at Work' bear closely on these issues and encourage children to think about life and factors which will affect them after they have left school.

Fig. 19 asks pupils to consider some of the social issues which are involved in families where husband and wife are at work.

Pupils are also encouraged to research into their local neighbourhood and to find out information related to people who take holidays abroad or people who lived abroad, whether the town is 'twinned' with a foreign town and whether sports teams visit abroad on regular occasions. Fig. 20 shows some of the activities which are suggested for pupils along these lines.

The book also aims to interest pupils in problems which exist in other countries and to make them think in international terms. A starting point here relates to people from other countries who offer us services. Fig. 21 focuses upon restaurants of different nationalities which exist in our towns and cities. Pupils are asked to list foods which are offered and also countries where people come from to eat at such places. Here again, the emphasis is upon widening the understanding and experience of the pupil with a view to appreciating the lifestyles and cultures of other people.

Finally, pupils are encouraged to think about world problems, and are helped to seek out information which will help their understanding of events which they often hear about on television and see referred to in newspapers."(W)

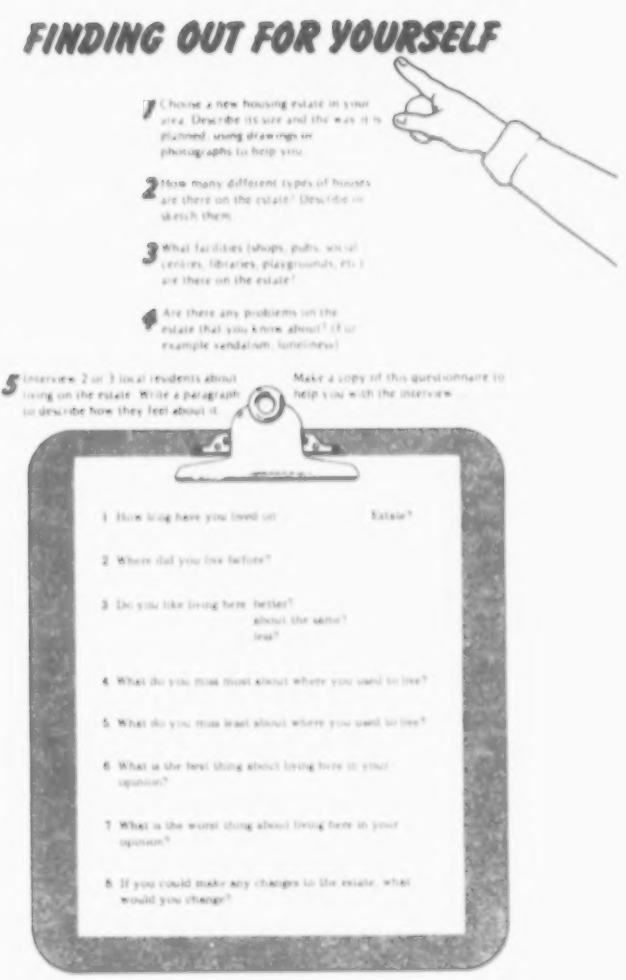

FINDING OUT FOR YOURSELF
1 Choose a new housing estate in your area. Describe its size and the way it is planned, using drawings or photographs to help you.
2 How many different types of houses are there on the estate? Describe or sketch them.
3 What facilities (shops, pubs, social centres, libraries, playgrounds, etc.) are there on the estate?
4 Are there any problems on the estate that you know about? (For example vandalism, loneliness)
5 Interview 2 or 3 local residents about living on the estate. Write a paragraph to describe how they feel about it.
Make a copy of this questionnaire to help you with the interview.
1 How long have you lived on Estate?
2 Where did you live before?
3 Do you like living here better?
about the same?
less?
4 What do you miss most about where you used to live?
5 What do you miss least about where you used to live?
6 What is the best thing about living here in your opinion?
7 What is the worst thing about living here in your opinion?
8 If you could make any changes to the estate, what would you change?

Fig.18. From Jane L. Thompson. *It's a Matter of People*. London: Hutchinson.

WOMEN AT WORK

Men's attitudes are changing too

He doesn't tell me what he gets.
I only know what he gives me.
(Rose Turner, aged 43)

1900

I had my fifth baby last month. I just don't think I could afford it if I had any more, but Bill doesn't take any notice if I tell him. He doesn't have to cope with them – he spends all his time and money in the pub. Still, at least the children keep me company.
(Maud Butler, aged 36)

1930s

I'M THE MAN OF THE HOUSE AND HERE'S MY MONEY TO PROVE IT. AND IF ANYONE WANTS ME, THEY KNOW WHERE TO FIND ME – IN THE PUB.
(Frank Wainwright, aged 41)

1949

I don't think it's my job to do work round the house. I work hard enough during the day. Anyway, if my mates saw me washing up or out pushing a pram, they'd call me a cissy.
(Alfred Reeves, aged 28)

1980s

He's quite good at playing with the kids and he will help with the washing up. But he never gets up in the night if the kids are sick and the day he does the weekly washing I'll probably drop dead shock!
(Nancy Lowe, aged 31)

If he comes home from work before I do, he'll even have the kids done for me. I don't ask him, he just does it. On Sundays he'll probably do the potatoes and the greens, but that's it. I suppose he might wash up once a week if I'm lucky.
(Judy Smith, assistant's wife with five children, who does two hours paid domestic work every morning.)

Using a tape recorder, interview some married couples you know who both go out to work. Find out how much they share the housework and looking after children.
What are the attitudes of the men to their wives working?
What do both sides think about doing the housework?

Fig.19. From Jane L. Thompson. *It's a Matter of People.* London: Hutchinson.

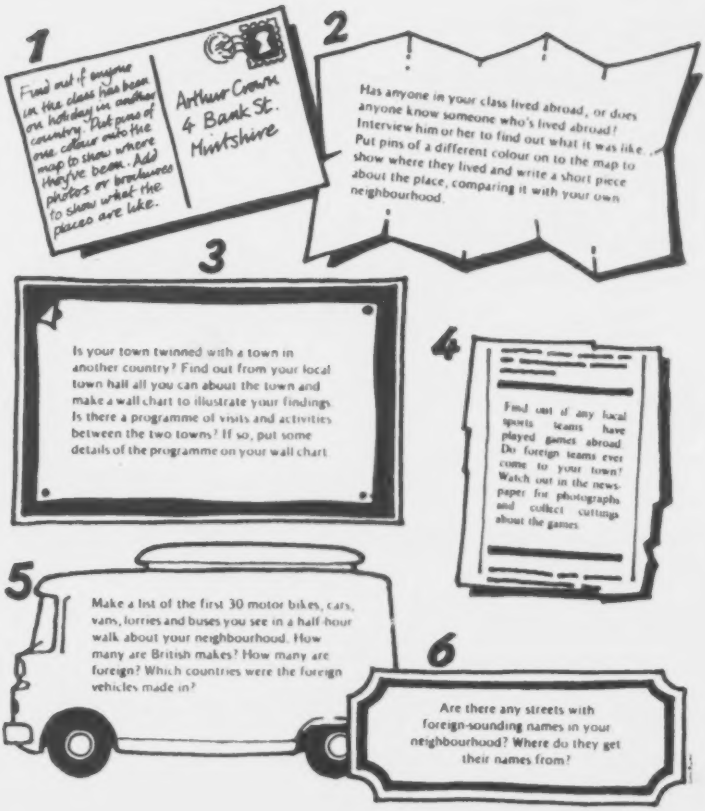

1
Find out if anyone in the class has been on holiday in another country. Put pins of one colour onto the map to show where they've been. Add photos or brochures to show what the places are like.
Arthur Crown
4 Bank St.
Hurstshire
2
Has anyone in your class lived abroad, or does anyone know someone who's lived abroad? Interview him or her to find out what it was like. Put pins of a different colour on to the map to show where they lived and write a short piece about the place, comparing it with your own neighbourhood.
3
Is your town twinned with a town in another country? Find out from your local town hall all you can about the town and make a wall chart to illustrate your findings. Is there a programme of visits and activities between the two towns? If so, put some details of the programme on your wall chart.
4
Find out if any local sports teams have played games abroad. Do foreign teams ever come to your town? Watch out in the newspaper for photographs and collect cuttings about the games.
5
Make a list of the first 30 motor bikes, cars, vans, lorries and buses you see in a half-hour walk about your neighbourhood. How many are British makes? How many are foreign? Which countries were the foreign vehicles made in?
6
Are there any streets with foreign-sounding names in your neighbourhood? Where do they get their names from?

Fig.20. From Jane L. Thompson. *It's a Matter of People.* London: Hutchinson

These photographs were all taken in streets near Jack's home. His neighbourhood is like many others in Britain, where people from other countries have come to live and work. Shops and restaurants soon open selling varied and interesting food.

1 Look carefully at the photographs. For each one, write down which country's food you can buy in the shop or restaurant.
2 Make a list of the names of any food shops and restaurants in your neighbourhood which sell foreign food and say what sort of food they sell.
3 Do you know any dishes which British people often eat now but which originally came from abroad? Draw or describe one of them.

Fig.21. From Jane L. Thompson. *It's a Matter of People.* London: Hutchinson

The *Nelson Humanities Scheme* sets out to cover areas directed at a better understanding of man. It deals with men and women in relation to their environment, their communities and their own self-knowledge. Thus it is singularly appropriate to the process of lifelong education, particularly the development of the learner's horizontal articulation, i.e. the encouragement of the pupil to proceed beyond his immediate environment.

> "The overall theme of human movement lends itself readily to wide-ranging environmental perspectives, in space and in time. In *Place to Place* (English) we range from glimpses of modern Africa - Nigeria and South Africa - to the United States of America. The textbook aims to stimulate the pupil's capacity to develop an imaginative insight into other people's experience, particularly sympathy and tolerance for those from a completely different culture. The extract from Chinua Achebe's *No Longer at Ease*, describing Obi's return to his native Nigeria after four years' absence in Britain and the passage from Peter Abraham's *Tell Freedom*, describing a South African childhood, seem crucial in encouraging this imaginative insight into other people's experience." (W)

The two other textbooks of the same series, *Across the Frontiers* (Geography) and *Promised Lands* (History) are conceived in the same spirit of open attitude to life. In *Across the Frontiers*, for instance, 'Boundaries' are examined in three chapters:

> "The pupil is taken beyond his immediate environment to Europe, South America, the Middle and Far East. The text raises such questions as whether man has placed his boundaries and frontiers in the right places or whether a boundary should enclose territory where all people speak the same language or have similar religious beliefs. The textbook never loses an opportunity to humanise the material. Thus the study of man is also central to the second half of the book which examines the ways in which people move and some of the reasons why they move. Again the perspective is world-wide: over-population in Bangladesh; under-population in Tibet; the holiday habits of British people." (W)

The U.S. study shares the opinion that

> "the social sciences as a field of study offer particularly rich opportunities for encouraging the student to develop curiosity and open attitudes toward the world beyond his or her environment.
>
> Many examples were found in both textbooks and activities books in which students were asked to use current and widely discussed issues such as the energy crisis or civil rights for undocumented aliens as the focus through which they could deepen their understanding of historical events and concepts as well as building skills of comprehension. This strategy also invited students to explore their personal viewpoints on the issues and to seek out and consider the viewpoints of friends, family and acquaintances."

Obviously some pupils got the message: A student asked how he would use his textbook after having left high school, answered: "Comparing the relations of past events to present events and how past precedents affect things today." (U.S.)

The *Science at Work* series is designed to interest and involve the reader in those aspects of science which form a part of everyday life. Thus there is in these books an immediate combination of theoretical and practical activities. The Wales study states in this regard:

> "The study of theoretical aspects in isolation is both boring and educationally unsound. Theory without application has caused so many problems in science teaching. Practical activities without any theoretical knowledge reduces science to a handicraft. There is need for a marrying of the two branches. Neither theory nor practice should dominate. There needs to be an interdependence. In the past theory has preceded practical work. In this series practical work is followed by theory." (W)

The various illustrations taken from *Science at Work* reproduced on previous pages (Fig. 13, 15) provide examples of this approach.

3. Discovering the real world through innovative pedagogical approaches in textbooks

In the perspective of lifelong education it is important that pupils are invited to use information and learning

resources outside school: museums, zoos, factories, etc. Obviously this is not yet a common practice, and suggestions for making such visits are not usually found in textbooks, even in the innovative ones examined in the framework of this study. On this subject the U.S. study makes the following comment, referring specifically to biology textbooks:

> "Few references are made in the text to using community resources for learning ... Further, most biology textbooks do not often encourage the users to seek information beyond that which is available within the school's resources or from the text itself, with the exception of the suggested additional readings at the end of the chapter. Teachers' manuals, however, do suggest optional community involvement activities, generally recommending that outside speakers be brought into the class to talk with students." (U.S.)

A virtually identical comment is made by the same team with regard to social studies textbooks:

> "Some activities required students to seek information from sources outside the textbook, but for the most part from sources inside the school such as library references and teachers and text material from other courses and disciplines." (U.S.)

The *Geography for the Young School Leaver* project, however, sets out to encourage the development of local resources, related fieldwork and a structured discovery approach. The utilisation of material and information from outside the school is central to the work undertaken by the project. The material which is at the disposal of teachers and pupils - resource sheets, worksheets, filmstrips, transparencies, teacher's guides - invites group discussion and team-work in an open classroom approach, where the teacher is primarily a manager of a learning environment.

Under the theme 'People on the Move in Cities - the Daily Rhythm,' a study is suggested on shopping facilities. First, pupils are invited to discover how shoppers perceive the differences that exist between various kinds of shopping centres. Second, they are asked to suggest a number of possible sites for a large out-of-town shopping centre, using maps of the local area and taking into account accessibility, availability of land, spending power of the population within the

possible catchment area, etc. Third, pupils are invited to hold a concluding discussion on the future general provision of shopping facilities.

The conducting of interviews, as we have already seen, is an activity that is often proposed within the textbooks analysed by the three national teams. There is no doubt that interviews create links with the outside world and provide opportunities for pupils to transfer and apply school-initiated. school-based learning beyond their immediate environment.

In an American teachers' manual for a social science course, another teaching strategy is proposed to help students develop an open attitude toward life and to foster tolerant attitudes.

> "Students were first encouraged to research and then pretend to adopt the point of view of persons of ages and circumstances vastly different from their own. Next, students were asked to consider and discuss a current national problem from the assumed viewpoint. Such an exercise would have teenagers thinking about how the elderly and retired persons on fixed incomes would feel and cope with rising inflation rates. One would expect that, having carried out such an assignment, the student would empathise with the elderly person's situation and be more sensitive to their needs and feelings. A skilled teacher might take such an exercise a step further to introduce the concepts of mutual interdependence, responsibility and community.
>
> An interesting example of a teaching for transfer strategy, as this project defines it, helped students understand and deal practically with the regulatory powers and agencies of state government. Students were to contact appropriate agencies to learn about their rules and proceedures by actually doing such things as:
>
> - Filing complaints of discrimination on the basis of sex or race
>
> - Applying for welfare or medical assistance aid ('medic-aid')

- Finding out about laws on minimum wages or hiring of minors

- Applying for a small business assistance loan or a home improvement loan

- Filing for candidacy for political office

- Obtaining benefits for military veterans

- Visiting a penitentiary

- Impeaching an elected public official

- Getting help for drug rehabilitation

- Getting a driver's licence, a liquor permit or title for a car.

In this example, students spent in-school time preparing and after-school time contacting appropriate agencies, just as adults might call during work hours to make appointments and visit the agencies in their own time - a realistic simulation. This illustration also provides an example of using the school curriculum and its material to help students use their learning as a means through which they can cope with their problems and the problems of others as well as exploring new resources for solving problems." (U.S.)

4. Conclusions

A number of the textbooks analysed for the study on school textbooks and lifelong education show

"how pupils can be encouraged to apply their knowledge to a consideration of issues, which are of local, national and international concern and that an awareness of such problems has an effect upon the lives of all members of society. The emphasis upon real issues was reinforced by the variety of learning techniques incorporated within the textbooks." (W)

Social studies and humanities seem to be particularly suited to the notion of transfer, affording as they do many

opportunities to take up problems that man faces today. In the perspective of lifelong education this is of particular importance, for pupils must learn about the challenges and the changes taking place in the modern world. Geography textbooks are by their very nature especially good vehicles for creating an awareness of the problems that exist in other countries and of other lifestyles. Science, too, provides opportunities to link theory to practical applications, as demonstrated by the *Science at Work* series.

Despite the afore-mentioned, however, surprisingly few references to the world of work and to vocational matters were found in the textbooks examined, nor was there frequent mention of future learning needs and of out-of-school learning facilities. This is clearly an area where much still needs to be done if textbooks are to embrace these aspects of lifelong education.

CHAPTER 5

Linkage

In the perspective of lifelong education textbooks should serve as a bridge to other disciplines, thereby promoting interdisciplinarity or linkage.

A main function of education and learning is to enable people to understand and solve problems. Problem-solving skills are of fundamental importance to adults, for the necessity to find answers to practical problems is one of the greatest motivational factors for them to want to continue their learning. The relating of learning to real life and to the world of work requires linkage between disciplines, a horizontal integration that is one of the characteristics of lifelong education.

In many innovative curricula, where the emphasis is not on the acquisition of knowledge but on processes such as mastering learning and research methods or, put more simply, how to learn, a tendency towards inter-disciplinarity or linkage can be readily identified. However, to break the solid structures of discipline-oriented teaching is not an easy task and throws up a large number of major difficulties, both logistical and philosophical. Nevertheless, some notable approaches to linkage of disciplines could be identified in the textbooks analysed by the teams from Singapore, the United States and Wales.

1. The format of textbooks and linkage between disciplines

As noted already in Chapter 1, the *Nelson Humanities Scheme*, described in the Wales study, is based on a conscious multidisciplinary approach. Textbooks of three separate disciplines (English, history, geography) are linked by one

single topic: the general theme of human movement. The Wales study continues:

> "Yet each discipline has been allowed to develop in its own way, so that we rarely feel that material has been incorporated merely to fit in with the dictates of the theme. There is no question of inferior material being included merely to comply with the principle of integration. One of the most obvious thematic links in the three books is that of holidays. Then there are more subtle links, such as the one that connects parts of the English and history textbooks. 'The Slave Trade' in *Promised Lands* (History) may be read alongside the extract from Peter Abrahams' 'Tell Freedom' in *Place to Place* (English). The study of the 'Railway Navvy' in *Promised Lands* could be linked up with the whole section devoted to 'Travelling People' in *Place to Place*. All three books also tackle emigration and immigration in their different ways; all three deal with communication." (W)

Bridges to other disciplines - religious education, social studies, biology (especially in the geography book) and even mathematics - also appear.

Geography would appear to be particularly well suited to linkage with other disciplines, especially geology, botany, zoology, social sciences and history. Thus the teachers' guide to *Geography for the Young School Leaver* contains a supplement devoted to 'Interdisciplinary approaches,' with suggestions for related work in English, history, mathematics, social studies, humanities and moral education.

The textbook *Human Geography*, examined in the Singapore study, employs a special device to create linkages:

> "It systematically uses cross-references to link what may appear to the uninitiated to be separate and different items. For instance, at the end of the section on wheat farming in Australia the author, having provided both text and pictures of sheep stations and wheat fields in Australia, invites the pupil to "turn to page 114 and compare them with the aerial photograph of Central Thailand." The pupil is then asked to list all the differences he can see with an explanation (for size, direction of prevailing wind and type and layout of settlements) beside each. An

examination of the book reveals that this cross-referencing is systematically done." (S)

2. Textbook content and linkage between disciplines

Observations on biology textbooks contained in the U.S. study are of particular interest with regard to the relationship between content and linkage:

"Most biology textbooks analysed in the U.S. study seem to link and help students to relate their content to that of the other sciences. One text, for example, begins with an explicit discussion of the interrelationships among the sciences. Specific examples appear which make clear that even in a biological setting principles of physics and chemistry are necessary, as are the understanding of social and industrial factors. However, another text in its instructions to teachers warns instructors to avoid diverting the student's attention away from biology by introducing too much from other disciplines. Yet much of the relevance of biology can be that some of its aspects - the biomedical areas of inquiry, for example - hold clues for explaining some serious social concerns. Thus, while there are few explicit examples in textbooks of linkage with the social sciences, implicit linkages are plentiful. Notable examples are:

- discussions of inherited mental illness;

- discussions of technologies and medication that enable persons with diseased organs to continue living socially useful and personally satisfying lives.

History and biology are continually linked in all texts as the authors seek to help students understand human progress in knowing more about humanity and the environment.

Linkages with the arts are rather subtle ones in biology textbooks. There is an apparent dependence of the textbooks on the use of the artistic medium to present and reinforce concepts and principles. However, no explicit references were found that state how the use of art contributes to the understanding of biology and other sciences." (U.S.)

In *Biological Science* the whole last chapter of the book is devoted to 'Challenges in Biology - Today and Tomorrow' and deals with some of the difficulties that both biologists and other interested parties are currently wrestling with. The main problems discussed are 'Environmental Quality,' 'Energy,' 'Population and Food,' 'Health and Diseases,' and, lastly, 'New Frontiers of Scientific Research.' Thus scientific, ethical, social, economic and political issues are clearly linked within the final chapter.

A similar question, related to pollution, is raised in the civics textbook *American Government*. In the chapter 'Citizens in Political Groups' under the heading 'Caution - Marine Biologists at Work,' the successful crusade for environmental safeguards fought by two marine biology teachers and their students at John Deweys High School, Brooklyn is reported. In this context a series of colour pictures shows different activities undertaken by the marine biology students.

The series *Science at Work*, examined in the Wales study, makes a very strong statement in favour of linkage:

> "No subject should be studied in isolation. The purist may say that a discipline or subject has grown due to its own demands. Therefore a subject has the right to stand on its own. However, the world does not exist in separate subject compartments. Children and adults do not see their environment divided up. Nature cannot be seen as a series of distinct and different topics. But, in order to obtain depth of knowledge and develop power of reasoning it may be appropriate to concentrate on a particular area or line of thought, which could be labelled as, say, physics or chemistry or history, etc. However, in the main, for the lay person it is far better that pure subject divisions be forgotten." (W)

The different booklets in the *Science at Work* series are not subdivided into distinct disciplines and they touch also upon non-scientific fields. 'Cosmetics' for example, is mainly chemistry and some biology. 'Electronics' is mainly physics. 'Photography' is physics plus chemistry, but raises also aesthetic and historical questions. For instance, a page is devoted to the development of the camera.

The notion "social studies" assumes a movement away from

single-subject teaching within certain areas of the curriculum. But not many social studies textbooks are so consistent as *It's a Matter of People*:

> "No hard and fast divisions exist between areas of knowledge, and when dealing with one theme many 'subject' areas are shown to be essential for a complete understanding of its content. Fig. 22 shows how many 'areas of knowledge' need to be examined in order to gain a detailed understanding of football violence. In this example the pupil would come to terms with elements of social psychology, mass communication, sociology, education, etc. The same is true when looking at previous examples quoted from the book. The author is at pains to avoid traditional 'subjects' and compartmentalised thinking, and to help pupils develop a comprehensive and interdisciplinary approach to learning." (W)

3. Teaching methods that enhance linkage

The pedagogical approaches of the textbooks examined by the Wales team tend strongly towards enhancing linkage. All are to lesser or greater degrees issue-oriented and not subject-oriented, thus fostering interdisciplinarity. They very often adopt inquiry methods, where many different aspects of a question are to be looked into (*It's a Matter of People*, *Geography for the Young School Leaver*) or activities that touch on different disciplines (*Science at Work*).

In the American textbooks examined inquiry methods are also used. For other activities students are sometimes explicitly encouraged to use textbooks of other disciplines in order to complete the assignment:

> "In a world history lesson students were asked to trace religious movement and other indications of the spread of cultures. Here religion, geography, anthropology, language, arts and sociology were interrelated and presented to the student in a deliberate manner. For example, students were to trace on a map the movement of various religions across the Far East. Using several ink colours, students indicated where religions originated. In the same exercise excerpts from the literature of the religions were provided and students were asked to respond to questions, to interpret their meaning, and to consider what impact the religion might have upon the students

FOOTBALL VIOLENCE

WHO'S TO BLAME?

As the demand for tougher penalties increases, the Football Association, the magistrates and even the Government are trying to find ways of reducing football violence. The real problem is that no-one understands enough about what causes the hooligans to behave as they do. Below are some reasons which are often given. Which of them do you think is the main reason? Write that down first, then write the rest of the list in the order of importance.

- People in gangs do things they wouldn't do if they were by themselves.
- The TV and Press exaggerate the problem and put ideas into people's heads.
- They come from rough areas and have grown up in an atmosphere of violence.
- They have had a raw deal in life – if they'd got more education, a better job and plenty to interest them, they wouldn't go looking for trouble.
- People are generally more unruly these days.
- They're bored and looking for a bit of fun.
- They've had too much to drink, which makes them aggressive.

Can you suggest any other reason to explain football violence?

What advice would you give to the Football Association and the Minister of Sport to stop football violence?

Fig.22. From Jane L. Thompson. *It's a Matter of People.* London: Hutchinson

in their school." (U.S.)

However, the U.S. study concludes:

"While most textbooks included some references and material from other disciplines, lifelong learning objectives could be enhanced by deliberately increasing the multidisciplinary emphasis." (U.S.)

4. Conclusions

A multidisciplinary or interdisciplinary approach is evident in a number of the textbooks analysed by the three national teams. This is particularly the case in the fields of social studies, humanities, geography, and science. However, in other textbooks linkage is limited to some isolated allusions to other disciplines, even when the intention to stress linkage appears in forewords or general statements about the objectives of the books. Thus in many cases a move towards interdisciplinarity is more in the mind than a reality. Obviously, examination constraints are important factors in hindering greater interdisciplinarity in textbooks.

As in previous chapters it would also appear that with regard to linkage textbooks conceived for less able children and for those likely to leave school once they have reached the compulsory school-leaving age are more innovative in the perspective of lifelong education than those intended for pupils intending to continue their studies. Perhaps one justification for this could be said to be that those who leave the formal education system at an early stage need to be better prepared for a lifelong process of education than those who go on into higher education.

CHAPTER 6

Flexibility

By flexibility is meant that the textbook should be able to be used flexibly by teachers, pupils and parents, although it must be remembered that different people learn in different ways. Alternative ways of learning have therefore to be presented to pupils in order that they 'learn how best to learn.'

Considered in the perspective of lifelong education textbooks should, therefore, provide teachers with the opportunity to vary the style of their lessons and to apply different teaching methods. Obviously, an imaginative and well trained teacher will be able to use even a "one-way book" in a flexible manner. However, a less-experienced poor teacher will not be capable of exploiting all the potentialities of an innovative, open and flexible textbook.

Pupils, too, should also be in a position to use the textbook in different ways, both in and outside school. It may be useful as a reference book or for self-directed learning, and usable alike by pupils and adults, e.g. parents. This is particularly important where families do not have private libraries and where textbooks are often the only books available in the home.

Concerning the notion of flexibility within the perspective of lifelong education Skager writes:

> "Flexibility is a basic principle of lifelong education. Without flexibility of time, place, mode and content, learners would never have the chance to exercise choice, would not have opportunities to become adept at a variety of modes of learning, and would be unable to follow their own interests and proclivities, perhaps never learning to trust their own intrinsic motives for certain types of

> learning. Flexibility is a condition that is antecedent to the operation of other conditions relating to self-directed learning." (58; p. 121)

It will have become apparent to the reader that flexibility is a main feature of the textbooks examined for this study. It is seen almost exclusively in the pedagogical approaches taken by the authors of the textbooks examined, hence the focus in the following pages on textbook methodology.

1. Methods of enhancing flexibility

The *Geography for the Young School Leaver* project examined in the Wales study is designed to develop innovative styles of learning and teaching and to enable the teacher to plan and structure her own curriculum more effectively. The wide range of resources - discussion sheets, slides, newspaper clippings, photo-sheets, maps, statistics, etc. - is clearly intended to be used flexibly by the teacher and provides the basis for pupil-centred activities. It is possible within the material provided to create learning experiences which will enable the pupil, whatever his or her ability or level of motivation, to test evidence, to interpret, to use his own judgement, to be aware of his own and other peoples' attitudes, and to be imaginatively involved in creating learning situations. The pupil may be working individually or in one of a variety of suggested group situations. According to the Wales team:

> "The structure of the content ensures a flexibility of material and approach, yet, there is continuity and sequence in the overall approach ... thus flexibility within a structured pattern rather than a loose collection of learning experiences." (W)

It must be stressed, however, that the material cannot be used by pupils on their own:

> "Self-instruction is not a major element within the project, and in fact would detract from the overall structure of the project's philosophy. The material needs a manager, a consultant who opens discussions, clarifies ideas, and interprets information within an overall perspective. The project stimulates, provides factual information and learning procedures, but is most certainly not self-teaching material." (W)

Geography for the Young School Leaver is organised around themes. This strategy seems to be particularly appropriate for fostering flexibility. Referring to social studies as well as biology textbooks, the U.S. study stresses the fact that

> "the organisation of textbooks around central concepts and themes seems to enhance their potential for flexibility in the classroom. Teachers can choose sequences and strategies of instruction that allow them to be responsive to students' interests and needs. For example, text material could be presented in a classroom lecture format with a co-ordinated laboratory assignment. However, the same content could be approached using a technique requiring very little lecturing and emphasising guided discovery. One teachers' manual offers suggestions for pacing the activities and lessons to meet the needs of students of low, average and advanced abilities. Most teachers' manuals also offer suggestions of how activities can be done with learners working alone, in small groups, or as an entire class." (U.S.)

It's a Matter of People is also suitable for flexible use by the teacher. Topics can be isolated and dealt with separately, or they can be followed in the sequential way suggested by the author. The amount of written work, interviewing, creative work, discussion in groups or with the whole class can be tailor-made to the individual requirements of teacher and pupil.

The U.S. study notes that

> "most of the biology programmes use a combination of approaches - systematic instructions, guided discovery and inquiry - that provides students with more than one way of assimilating the content. Students have the opportunities to hear lectures, view films and read the texts and supplemental resource materials. Projects and experiments may be done individually, in small groups or teams, or with the entire class. Group discussions are a means of helping students to develop such lifelong educational skills as critical thinking and the ability to appreciate the role of biological inquiry in society." (U.S.)

Accommodating pupils with different learning styles is an identifiable feature of some of the American textbooks analysed:

> "For example, a case study of the executive branch of government could be carried out exclusively by reading resource material. The same case study could also be carried out by an experimental learning project, based at a community site. Thus, although the issue of learning style preference was not explicitly highlighted, students' preference was accommodated to some extent by providing them with alternative strategies for learning the same content. This has important implications for lifelong education: helping students understand there are alternative approaches to learning the same content as adolescents should help them consider alternative learning strategies as adults." (U.S.)

An analysis of pupils' perceptions of the textbooks analysed was not an aim of this study, although it would certainly be worthwhile developing a better understanding of how pupils use and assess their textbooks. The findings of a tentative inquiry carried out by the U.S. team into one of the history books examined seemed to imply that pupils saw the book mainly as a source of information or as a reference work.

Whether the textbooks analysed might be used profitably by parents or other adults was not put to the test by the three national teams, although several were identified as being suitable for this purpose. The *Science at Work* series and the social studies textbook *It's a Matter of People*, were picked out by the Wales team as being particularly likely to interest and appeal to adults. Moreover, the latter textbook contains an extensive list of organisations, charities, self-help groups, archives, etc. which pupils, teachers and parents can contact for further information on matters linked to the topics of the book.

2. Conclusions

As stated above, the three national studies were not really able to come to terms with the notion of flexibility, reflecting no doubt the very complex nature of this aspect of textbooks. Some of the textbooks analysed had a format that enabled pupils to use them flexibly, and various alternative

methodological approaches were apparent. It was felt, however, that the greatest potential for flexible use of the textbooks selected for analysis remains with the teacher.

The textbooks examined were not designed to be used outside the school setting, but nevertheless some of them could be used to great benefit by both young and adult self-directed learners. It is paradoxical, however, that the textbooks most suitable for flexible use by teachers are not necessarily those that could also be used out of school, that is to say without a teacher. This goes some way to explaining the problems encountered when attempting to examine flexibility of textbooks in the perspective of lifelong education.

Part Three

Conclusions and Recommendations

Three main assumptions underlie the present study: the first is that textbooks continue to play an important role in schools, determining to a large extent what happens in classrooms; the second - and more implicit - assumption is that the production of innovative textbooks will, in the long run, impact on schools and bring about change; the third is that to make textbooks more consistent with the principles of lifelong education would be a step forward in the implementation of that concept.

Whilst it is self-evident that innovative textbooks will not by themselves create radical educational change, they nevertheless may contribute to and perhaps even initiate the innovatory process. As the Wales team reports:

> "because of the central position in the teaching-learning process, and because of the flexible way in which it can be used, the school textbook seems to be a central mechanism which is capable of conveying to pupils the principles of lifelong education. A crucial factor related to its usage in this direction, however, is the realisation and acceptance by educational administrators, headmasters and teachers, that the textbook is an important vehicle for conveying principles and ideas which will enable pupils to develop into lifelong learners." (W)

Furthermore, the Wales study identified three essential features of school textbooks in the perspective of lifelong education. First are self-instruction and self-assessment techniques which serve to encourage the pupil to become a self-manager of his own education and thereby foster problem-solving skills and critical thinking. Second is the emphasis in textbooks upon real issues - reinforced by the inclusion

of a wide variety of realia - which encourages the pupil to link educational experiences with life and therefore to see education as a means of understanding better practical issues which face the responsible citizen in a complex and ever-changing world. Third is the focus on the pupil as an active rather than passive learner, whereby the expression of opinions and the use of discussion techniques are seen as important, as is the emphasis placed on the development of oral skills and the value of group discussion. Moreover, such techniques encourage the pupil to think in an inter-disciplinary and multidisciplinary way, thus avoiding a 'compartmentalised' approach which is so often characteristic of the subject-centred curriculum of many traditional secondary schools.

To summarise the main findings of this study, it is probably most appropriate now to describe what a textbook might look like if it is to embrace fully the concept of life-long education:

Format The cover is colourful and is attractive and strong enough to enable the book to be used beyond school-going age. The book is not so large and weighty that the pupil is frightened by the sheer bulk of what he must read (and carry!). Illustrations are in colour where this has information value; when used cartoons and other drawings have a style that appeals to the tastes of target learners. The layout is clearly structured, functional and uncluttered, facilitating both immediate orientation within the text and ease of reading. In addition, important parts of the text, summaries, keywords, important titles, etc. may be accentuated by using a solid second colour or colour tint. Generally, the quality of the textbook's format is typical of that which prevails for most books in circulation in the country concerned.

Content The content of the book is clearly structured, and is based on concepts, problems or main ideas rather than on abstract categories, thus demonstrating its relevance and permitting multi- and interdisciplinary approaches. Chapters begin where possible with a succinct statement of their objectives, so that learning goals are immediately apparent. The factual content of the textbook is relevant to the pupil, taking into account his age, cultural background, etc. At the same time the pupil is made aware of the methodology of a discipline with results of scientific research being presented

in an undogmatic way (stressing the fact that knowledge and scientific theories change and evolve). Inherent in the content is the transfer of knowledge to everyday life situations and actual problems on local, national and international level, and linkage with other disciplines is frequent. Cross-references and an index serve to help the pupil to find his way through the book and to discover interrelationships between different subjects.

Language The language of a textbook that is in line with the concept of lifelong education is clear, precise, and matches the reading abilities of the target group. Glossaries explain new or difficult terms. The style is direct, lively, sometimes using a conversational tone, thus engaging in a dialogue with the pupil.

Methodological approaches The textbook involves the pupil in an active learning process, and does not confine itself to the transmission of facts. It teaches therefore through guided discovery. Questions interrupt descriptive texts - thereby stimulating ongoing discussions - rather than being placed at the end of the chapter. Problems are raised and the pupil is incited to think critically rather than simply to memorise facts, thus fostering problem-solving skills. The textbook engages the pupil in a wide range of research and other creative activities, individually or in groups, enhancing self-learning processes. It invites the pupil to use a variety of other sources of information both in and outside school. An annotated bibliography is provided where possible to help the pupil continue self-study. Assignments and end-of-chapter questions are included, having the dual function of checking whether the content has been assimilated and of providing self-assessment through a wide variety of exercises, project activities and discussions of practical issues related to the subject.

Whilst the present study has identified characteristics of school textbooks that conform to the main principles of lifelong education, it has not attempted to provide evidence of their success in preparing pupils to become lifelong learners. Further research is needed, particularly into the impact of such characteristics on learning processes, attitudes and skills, a view supported by the three national teams participating in this project.

The following recommendations are thus made: that *educational researchers and research institutions* give much more emphasis to questions such as the use of textbooks by teachers and pupils and the pedagogical approaches they adopt; that *textbook authors and publishers* develop a greater awareness of the role of textbooks for promoting lifelong education and the incorporation into the textbooks of such characteristics which may best prepare pupils to become lifelong learners; that *all professionals within the education service* seek an increased awareness of research undertaken into the concept of lifelong education and its application to the curriculum, teaching methods and textbook production; that *those responsible for the choice of textbooks* select those textbooks which show such characteristics as described in the present study and which seem apt to promote lifelong education.

Finally, it is hoped that the present study will encourage all those within education to discuss and consider the role played by textbooks in the broadening of educational objectives within the perspective of lifelong education.

NOTES

(1) The concept of lifelong education, launched and explored in the 1960's by researchers such as R.H. Dave and Bertrand Schwarz in response to the "world crisis in education" (proclaimed by authors such as P.H. Coombs (13), and adopted in 1972 by the International Commission for the Development of Education led by Edgar Faure), is now recognised worldwide as a guiding principle for the reform of educational systems. But translating this theoretical concept into educational practice still raises many problems. The work done by the UIE seeks to give concrete answers to these problems. See in particular the publication by Cropley (15-17), Dave (19-22) and Skager (58, 59).

(2) On this subject see the publications of Burgess (9), Dominicé (26), Goguelin (30), Hubermann (33), Knowles (38).

(3) Knowles rightly says: "A basic human competence - the ability to learn on one's own - has suddenly become a prerequisite for living in this new world" (38; p.17).

(4) On this subject see E. Chiera (11), S.N. Kramer (39), and Unesco *History of Mankind* (62; vol. I, part two, pp. 658-663).

(5) The report *Learning to Be* of the Edgar Faure Commission, the importance of which for the concept of lifelong education has already been mentioned, contains only two, very insignificant, passages on textbooks.

(6) The school textbook does not necessarily have to take the form of a book. Richaudeau's definition may be quoted here:

"A textbook is a printed material, structured and designed for use in a concerted process of learning and education. This applies to an atlas as well as to a dictionary, an encyclopaedia, an anthology of chosen pieces, a school textbook proper for the learning of reading, mathematics, sciences, literature, languages etc. It may be an aide-memoire, a grammar, a technical handbook, a programmed text etc. In fact, any printed text (newspaper, literary, technical, scientific or philosophical work) can play the role of a textbook if it is systematically integrated into a process of teaching and learning." (52; p.51).

(7) According to Landsheere's definition "a curriculum is a total of planned actions to create instruction: definition of the objectives, contents and methods of teaching (including evaluation), materials (including textbooks) and arrangements for the adequate training of teachers" (40; p. 16).

(8) On this subject see R. Skager and R.H. Dave, *Curriculum Evaluation for Lifelong Education* (59) and A. Levy, *Handbook of Curriculum Evaluation* (42).

(9) The General Certificate of Secondary Education (G.C.S.E.) has now replaced the former Certificate of Secondary Education (C.S.E.) and the General Certificate of Education Ordinary Level (G.C.E. 'O' level). Advanced ('A') level examinations remain, however.

(10) See Gerd Stein: *Schulbuchwissen, Politik and Pädagogik* (61; pp. 190-226).

(11) For more detailed information about the pedagogical functions and the good use of illustration and colour in textbooks see Richaudeau: *Conception et production de manuels scolaires* (52; specially p. 88-89 and 154-177). Similar to the Singapore study, Richaudeau too considers illustrations to be an essential feature of textbooks in a "visual world:" "Les enfants de notre génération vivent dans un environnement d'images et de couleur (magazines, publicité, cinéma, télévision), environnement si familier et si prégnant qu'ils accepteraient difficilement de régresser, a l'école, au sein d'un environnement dépourvu de ces signes illustrés. D'autre part, il subsiste de solides

arguments psychologiques et pédagogiques en faveur de l'image" (52; p. 162).

(12) For details see: G. de Landsheere: *Introduction à la recherche en éducation* (40; p. 282-352) and F. Richaudeau: *Conception et production de manuels scolaires*, which contains also a bibliography on the subject (52; pp. 131-151).

(13) Shnayer, S.W. "Relationships between reading interest and reading comprehension" in J.A. Figurel (Ed.): *Reading and Realism*, 1968 proceedings, vol. 13, part I, Newark, Delaware: International Reading Association.

(14) The fundamental role of the family in lifelong education has been recognised by those who developed the concept at a very early stage. Already in the first UIE Monograph "Lifelong Education and School curriculum" R.H. Dave writes: *"The home plays the first, most subtle and crucial role in initiating the process of lifelong learning. This continues throughout the entire lifespan of an individual through a process of family learning. The interactions between the members of the family constellation, the home management, the life style of the family and other factors constituting the educational environment in the home are very important in lifelong education. In fact, the home, a primary social institution, becomes an educative agency which initiates the learning process and continues it throughout the lifetime of an individual who finds himself in different roles of configurations as time passes"* (19; p. 15-16).

(15) "Textbooks and other materials, regardless of how bright, attractive and innovative, cannot change schools. Again it is the people - teachers, students, school boards and administrators - who support and work inside schools that must address teaching and learning from the perspective of education as a lifelong process and help students see applications of content and skills beyond the textbook." (U.S.)

APPENDIX 1

Recommendations of the U.S. study

In addition to the matrix developed under the project for the analysis of the textbooks selected, the U.S. team also used a tally instrument (see Appendix 2). With the format of the recommendations contained in the U.S. study being different from that of the two other reports, it would have proved an extremely difficult and complex task to integrate them with the conclusions of the two other studies. Hence their reproduction in full here. It is to be stressed, however, that although more detailed than those of Part Two of this book, they are completely compatible with the latter.

> "Based on an informal analysis of the data, the following recommendations are made to provide school texts with the potential for fostering lifelong learning skills, attitudes and behaviours:
>
> 1. While all texts do a thorough job in covering important historical/political facts and figures, more effort needs to be made to relate this information to the students' own experiences and to relate the content to present and future activities as family members, workers and citizens. Incorporating more questions on the synthesis level would not only help students convey ideas, feelings and experiences to others; it would also help students see the interrelationship of concepts and facts and apply these to their own experiences. Synthesis questions encourage the student to put together ideas, elements and parts so as to form a whole framework in which in-school learning and informal learning come together with meaning for the individual and her or his experience. Some specific examples of activities on the synthesis level include:
>
> - developing a way of communicating ideas, feelings and experiences to others;
> - writing assignments that require the student to organize his or her ideas and statements about a topic;
> - developing a plan of work;

- developing a set of abstract relationships so as to classify or explain a particular phenomenon;
- formulating new hypotheses based upon an analysis of many factors;
- modifying new hypotheses in the light of new factors or evidence.

2. Basic skills in mathematics and communication need more emphasis. Greater numbers of activities which involve students in computation and communication would help support these skills while at the same time showing relationships among disciplines. Concurrently, these activities would allow for greater variety which would then provide students with options appropriate to their different learning styles. (Refer to recommendation 6.) Students need to be given choices in how they wish to pursue understanding and application of the material. Greater emphasis on supporting basic skills instruction has these further implications:

- reduces and eliminates duplication of effort across courses, grade levels and disciplines; facilitates curriculum continuity;
- ensures that skills learned in the classroom will generalize to the problems and settings encountered on a day-to-day basis; improves student motivation;
- ensures that all essential learnings are acquired in the most favourable developmental sequence and that none are missed;
- schoolwide skills standards help generalize skills and bring students to criterion performance faster;
- increases time on task, thereby increasing learning rates and teaching efficiency;
- produces greater continuity in educational planning and more effective follow-through on a long-term basis; increases parent participation in instruction-related activities;
- improves teacher performance and motivation;
- improves the effectiveness and/or efficiency of instructional programming across time;
- provides most effective programs at the best cost/benefit ratio; resources are used to produce the greatest effects; wasteful activities are eliminated.

3. The need of students to develop and hold values, ideals and standards should be taken into account more frequently. An important element of behaviour characterized by valuing is that it is motivated not by the desire to comply or obey, but by the individual's commitment to the underlying value or principle guiding the behaviour. There are levels of values as there are levels in the cognitive domain. At the lowest level of valuing, a student holds a certain belief, the student accepts the value. At the highest level of valuing, the student has conviction or commitment to the belief; the student has little doubt that the value is right. Activities which require students to incorporate values stress that internalization of a set of specified, ideal values. Examples of values textbooks should encourage are addressed in illustrative educational objectives like:

- encouraging the development of effective speaking and writing;
- attaining optimum health;
- feeling a sense of kinship with human beings from all nations;
- being a participative group member by seeking to solve common problems at the local, national and international levels;
- recognizing the need for enriched spiritual life or for religion by different groups of individuals.

4. Student attitudes need to be addressed more frequently. Positive student attitudes and student motivation to learn should increase as the course of instruction becomes more meaningful to students. The textbooks could help learning to be made meaningful by:

(a) Relating the learning to the students' realm of experiences. Textbooks need to be explicit about how the course relates to their own experiences. For example, an activity on the war of 1812 may ask students if they have ever been involved in situations of conflict, and what the outcomes were.

(b) Relating the learning to students' future goals. Here textbooks need to address situations students

will encounter in the future, including skills they may need in everyday life or in the job market. One way to do this is to develop a statement that provides an overview of the activity to be accomplished and how doing so relates to future activities of school.

(c) Relating the learning to students' interests. Students need to participate in choosing what they will learn from a variety of suitable and content-appropriate objectives. They should be allowed to make decisions about course objectives and procedures. Helping to direct their own learning while in school affords students the opportunity to develop their interests and can promote attitudes that favor continued learning attitudes while also providing them with a sense of involvement and ownership in course content.

Further, activities which encourage students to work with one another and gain pleasure from the experience are warranted. Similarly, students need support in learning how to set goals and standards of accomplishment. Criteria for this should be incorporated into the learning activities, as well as a means for self-evaluation, an important element of lifelong learning. Students need feedback - the texts need to provide this as a part of the content material.

5. Much of the learning that takes place during adulthood is used as a problem-solving strategy. Problem-solving skills need to be addressed and supported. Problem-solving involves application of principles and concepts. Concepts come together to form principles; principles are then used to solve problems. When a student is discovering and learning the properties of a concept inductively, that student is solving a problem. A student must solve a problem when a desired goal is out of reach. A problem means there is differential space between what a student can do and what the student would like to do. Texts can help students solve problems by specifically incorporating and teaching complex principles. When students know what the important underlying principles are, they are better able and, therefore, more likely to be successful in solving problems. In cases where principles are not known (for example, problems of pollution and how

the government strives to control this condition), students need to be aware of general principles that will aid them in solving the problem. Five steps are usually involved in the process of teaching students to solve problems:

(a) Teaching students to recognize problems when they see them.

(b) Teaching students to state the problem in the form of a question.

(c) Teaching students to collect information from many sources to find solutions.

(d) Teaching students to evaluate possible solutions and select from among them those that are likely to succeed.

(e) Teaching students to try out possible solutions and decide which is most feasible.

Real historians are problem solvers; they sift through materials, derive conclusions and explanations based on evidence. Then they test those conclusions against the judgement of others. Texts need to present this picture of the historian at work in a problem-solving mode, and then involve students in similar activities.

Deliberate teaching of problem-solving skills can enable students to become effective lifelong learners.

6. Learning activities must be varied and allow for different learning styles. Research in hemisphericity points out that individuals can be sorted into categories of right brain learners and left brain learners, depending on how an individual generally processes information. The student who is "left brain" oriented processes data in a linear fashion, across time. For example, when a student relates a text to another text read in a different course, that student is using the left hemisphere of the brain. This student needs to read or listen to understand how things go together. The student who is "right brain" oriented processes data in an intuitive manner across space. For example, when a student recognizes a picture or a diagram displayed in a book, that student

is using the right hemishpere of the brain. This student needs to "see" how things go together. This student can't remember what was heard or read in a story but can describe in detail a movie that was recently seen. Such research is aimed at the importance of integrated brain thinking. Integrated brain thinking is the result of each hemisphere supporting and augmenting the information processed by the other. For educators, this means providing instruction that is presented in a linear fashion across time (reading it or hearing it) as well as presenting information in visual space (seeing or imagining it) so that students have the opportunity to process information from both hemispheres. Another implication is that it becomes imperative to present information in a different way to a different hemisphere of the brain if the student is "not getting it".

Professional strategies for achieving integrated brain thinking are:

(a) Presenting information simultaneously, for example;

"Tell us what this graph is displaying."
"Explain what you see in the pictures."
"Watch me as I draw the chart and listen to what I am thinking."

(b) Assisting the learner who is not "getting it" by changing the hemispheric input strategy - in other words, follow instructions directed at one hemisphere with instructions directed at the other hemisphere, for example;

"I'll describe one example of wage and price controls and you describe another like it. Now find another example."
"Let's talk through the events leading up to the American Revolution."
"Now let's role-play one of the events."
"Make a picture that describes the Boston Tea Party. What does the picture show?"
"If we translated the time line into words, what does the picture show?"
"If we translated the time line into words, what would it say? Where would this event go on the time line?"

(c) Instructing on one hemisphere only - this allows students the opportunities to practice and handle non-integrated input, for example,

"Read the directions, then do the activity."
"Figure out what is displayed in the graph."
"Look at the time line, then make one like it."
"Read the chapter and answer the review questions."

Again, the importance of integrated brain input is to allow students the opportunity to understand and relate information and experiences to their own backgrounds. Textbooks need to augment and support the traditional left brain teaching and learning in American classrooms with activities and input that requires right brain processing. Doing so helps students achieve success in learning and in independently selecting appropriate learning strategies once they leave compulsory schooling.

7. Learning activities must be varied and allow for different student interests. A wide variety of options needs to be given to students so they are able to help direct their own learning. Activities which incorporate the following interest levels need to be included frequently in the texts:

- writing diaries, scenarios, stories;
- creating bulletin boards, advertisements and political cartoons;
- organizing debates and class discussions;
- viewing a variety of media;
- creating media events for historical happenings;
- using community people as resources;
- role-playing various personalities;
- researching historical landmarks;
- writing and composing songs;
- illustrating magazine articles and advertisements;
- creating maps.

These activities also need to include more social history elements along with political history elements. For example, aspects of religion, the arts, social interaction patterns, employment patterns, recreational patterns and so on. Students are geneally fascinated and "turned on" by these personal details of past eras. One needs only to look at the phenomenal success of

Roots for proof that students are highly motivated by the social history approach. Understanding relationships between political history and social and intellectual history is critical to understanding the present as well as the past.

9. The various life roles the student will enter upon completing high school need to be addressed with greater frequency. Activities are needed which assist students in understanding and preparing for the duties and responsibilities for being a:

- family member;
- citizen;
- friend and neighbour;
- worker;
- consumer;
- volunteer in community service.

Additionally, in our efforts to achieve human fulfillment in a learning society, we need to help students become:

(a) Aware of themselves as social, cultural, political and personal human beings.

(b) Aware of their choices, options, alternatives.

(c) Able to recognize and understand problems, then generate solutions.

(d) Capable of making appropriate choices then being able to carry them out.

(e) Knowledgeable of the principles of justice.

An optimal lifelong learning environment is one that provides not only the goals but also the means to carry out those experiences so as to allow students the opportunity to develop their full potential vis-a-vis their adult life roles.

10. The size of the text should be manageable for students. The majority of students surveyed felt their books were too bulky and too heavy. Sheer size and weight was intimidating to many students - their first reactions were unfavourable. It appeared to be just too much to have to read. One solution

to this problem is publishing history books as a series of worktexts, developed chronologically or topically. These worktexts would have a workbook-type format which could include rationale for learning the material, pre- and posttests, vocabulary, background information, a wide variety of learning activities and a resource section. A series such as this would also allow for continuous progress learning; faster students could work through the materials at their own rates, while slower students would be provided with remediation and individual help when necessary. Students would have a greater sense of personal involvement in the discipline - they would be able to select those materials that were of interest and value to them at the time. There would be a choice in learning activities. Pre-tests would help students determine those skills, attitudes and knowledge they need to pursue. Post-tests would help students determine the extent to which the material was mastered. Finally, extension and enrichment activities would allow for further choice, again depending on interest and abilities. It would appear that the publishing of student worktexts or similar designs would be more cost effective than the traditional text. Most history courses do not completely cover the material in the text during the quarter, semester or year. Many texts are used as supplemental materials; students and teachers use portions of the texts when specific information or activities are needed. Individual worktexts, however, mean students are working singly or in groups on aspects of history that interest them at the time. Slower students will probably move through fewer of the books; faster students will be able to cover as many as their personal rates allow. In addition, a series of individual worktexts means a continued sense of "newness" and "freshness" each time a student begins a topic area.

In summary, directing the learning experiences to the needs, interests, perceptions, aspirations and abilities of students is critical to the success of a lifelong learning-oriented curriculum and essential to helping students see the potential value of education beyond the years of compulsory schooling."

APPENDIX 2

The Frequency Tally of the U.S. study

Use a stroke tally (1111 1) for each time an example of the following occurs indicating whether you found the example in the text materials or in the exercises that accompanied the text. On a separate sheet, cite an example for each item (with the page number). Please use the item number on the examples to help us code the information.

Behaviour

1. How often does the text explicitly address or encourage the user to engage in

1.1 information seeking

(a) in the school context
in exercises in text

(b) beyond the school context
in exercises in text

1.2 the development and/or use of problem-solving skills
in exercises in text

1.3 initiating a learning activity
in exercises in text

1.4 independent learning
in exercises in text

1.5 the look for relationships among disciplines
in exercises in text

1.6 the utilization of resources in the community for learning
in exercises in text

Life Skills

2. How often does this textbook relate its content to

2.1 preparation for careers in its field
in exercises in text

2.2 preparation for higher education
in exercises in text

2.3 preparation for vocational training
in exercises in text

2.4 preparation for adult life roles

(a) family member
in exercises in text

(b) citizen
in exercises in text

(c) friend/neighbour
in exercises in text

(d) worker
in exercises in text

(e) consumer
in exercises in text

(f) volunteer in community service
in exercises in text

2.5 preparation for constructive use of leisure time
in exercises in text

Attitudes

3. How often does this text encourage the user to

3.1 cooperate with others
in exercises in text

3.2 approach life with openness and curiosity
in exercises in text

3.3 view learning as a source of personal satisfaction
in exercises in text

3.4 recognize the need for and value of education throughout life
in exercises in text

3.5 set goals or standards of accomplishment and engage in self-evaluation
in exercises in text

3.6 examine values
in exercises in text

3.7 consider alternative points of view
in exercises in text

Basic Skills

4. How often does the text require the user to develop, improve or practice

4.1 reading
in exercises in text

4.2 writing
in exercises in text

4.3 computing
in exercises in text

4.4 speaking
in exercises in text

4.5 listening
in exercises in text

4.6 analysis/critical thinking
in exercises in text

4.7	synthesis in exercises	in text
4.8	evaluation in exercises	in text

APPENDIX 3

Textbooks analysed by the national teams.

Singapore

Mee, A.J. and Jarvis, A.C.E. *Certificate Physical Science.* Book 2. Singapore, London, Nairobi: Heinemann Educational Books Ltd, 1977.

Speak, C.M. *Human Geography - East and South-East Asia and Australia.* Hong Kong, Singapore, Kuala Lumpur: Heinemann Educational Books (Asia) Ltd, 1978.

United States

Social studies

Bragdon, H.W. and McCutchen, S.P. *History of a Free People.* New York, N.Y.: Macmillan Publishing Company, Inc, 1978.

Gillespie, J. and Lazarus, S. *American Government: Comparing Political Experiences.* Englewood Cliffs, New Jersey: Prentice Hall, Inc, 1979.

McClenaghan, W. *Magruder's American Government.* Boston, Massachussetts: Allyn and Bacon, Inc, 1979.

Mehlinger, H. and Patrick, J. *American Political Behaviour.* Lexington, Mass: Ginn & Co, 1980.

Risjord, N. and Haywoode, T. *People and Our Country.* New York, N.Y.: Holt, Rinehart and Winston, Publishers, 1978.

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